

Antiretroviral Treatment in the Spotlight:

**A Public Health
Analysis in Latin
America and the
Caribbean**

2013



**Pan American
Health
Organization**



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REGIONAL OFFICE FOR THE **Americas**

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PREFACE

More than three decades into the HIV epidemic, and with unprecedented mobilization at the highest political levels and with civil society, efforts have begun to bear fruit and tangible progress has been made. In Latin America and the Caribbean, some countries have greatly expanded their response to HIV and have reached a tipping point: the number of people who initiate treatment each year exceeds the number of new infections, indicating that the response to HIV is beginning to move ahead of the epidemic. This shows that sustained political backing, increased financial investment, and delivery of services with high coverage can achieve results and accelerate progress.

Antiretroviral treatment is one of the interventions with the highest impact on HIV. All the countries of Latin America and the Caribbean offer free services for HIV care and treatment, financed for the most part by national resources. However, 10 countries, some with a high burden of HIV, are still heavily dependent on financial aid from international donors. Several of these countries have taken steps toward reducing their dependency. Thus, it is important to support and document the effort to move toward sustainable financing of universal coverage for antiretroviral treatment.

In this context, I am pleased to introduce this second report on antiretroviral treatment in Latin America and the Caribbean. As a regional public good, the report has been prepared with the collaboration and support of key partners, such as the Horizontal Technical Cooperation Group and civil society networks. This report will help to promote critical thinking and the strategies for expanding and integrating the response to HIV in the region. The report also reflects the work and progress made in the countries since the previous report was published two years ago. In comparison with the first report, this one consolidates the analytical framework and increases the quality and quantity of information

available to measure progress in the response to HIV. The report shows how the regional response is moving toward the application of the public health principles described in the Treatment 2.0 Initiative of the World Health Organization and UNAIDS.

Latin America and the Caribbean lead the world in providing and expanding antiretroviral treatment on the basis of technological innovation and scientific evidence. The region is at the threshold of universal access to antiretroviral treatment, and seven countries have already achieved this. What remains is to close the gap in treatment coverage and ensure equitable access to and delivery of services.

Antiretroviral Treatment in the Spotlight: a Public Health Analysis in Latin America and the Caribbean 2013 shows which priority aspects need to be addressed to maximize the benefits of antiretroviral treatment. Timely diagnosis and access to care for people with HIV, within a human rights approach, are indispensable to ensure the sustainability of the efforts made. To accomplish this, countries should apply the basic principles of simplification, integration, and innovation.

The Pan American Health Organization urges Member States, civil society, and technical partners to continue supporting the current activities and progress reflected in this report, and at the same time increasing emphasis in neglected priority areas by providing political support, program action, and high-quality technical cooperation to achieve the proposed goals and advance toward ending the HIV epidemic in the Americas.

Dr. Carissa F. Etienne
Director

Acknowledgments

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The Organization thanks the authors of the study entitled Results of the Analysis of Antiretroviral Drug Prices in the Area of the Horizontal Technical Cooperation Group of Latin America and the Caribbean for sharing the study data. The text of the excerpt from the report is found at the end of this document.

List of Abbreviations and Acronyms

3TC	lamivudine
ART	antiretroviral treatment
ARV	antiretroviral
ATV	atazanavir
ATV/r	atazanavir/ritonavir
CARICOM	Caribbean Community
DWB	Doctors Without Borders
EFV	efavirenz
FDC	fixed-dose combination or combination fixed dose
FTC	emtricitabine
HTCG	Horizontal Technical Cooperation Group in Latin America and the Caribbean
INH	isoniazid
PAHO	Pan American Health Organization
PANCAP	Pan Caribbean Partnership against HIV and AIDS
SF	Strategic Fund (of the Pan American Health Organization)
STI	sexually transmitted infections
TFV	tenofovir
WHO	World Health Organization

Introduction and Objectives

Since the launch of the Treatment 2.0 initiative, antiretroviral treatment (ART) in Latin America, the Caribbean, and throughout the world has made substantial progress. The highest political levels have been motivated to expand antiretroviral treatment by promoting the application of scientific advances showing that ART saves lives and significantly reduces the transmission of HIV. At the same time, in June 2013, the World Health Organization (WHO) published consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Applying the WHO recommendations implies providing ART to a greater number of people.

That is the context of this second report on the situation of antiretroviral treatment in Latin America and the Caribbean, its progress, difficulties, and vulnerabilities. The baseline is taken from the 2010 data published in the first report. Progress in the last two years in care and antiretroviral treatment and how these advances are related to changes in the WHO recommendations are shown, as well as neglected or vulnerable areas. The report is also intended to stimulate sustainable regional progress toward achieving the goal of universal access to antiretroviral treatment by 2015. For the first time, preparation of the report was supported by the joint efforts of several key partners in the region, such as the Horizontal Technical Cooperation Group of Latin America and the Caribbean (GCTH), and civil society networks.

Methodology

For this document, the framework analysis of the first report (baseline) (1) was used, with some updates.¹ The operational criteria for the analysis of the sustainability and efficacy of an ART program are:

- Cost of priority antiretroviral drug regimens
- Dependency on external financing for ART in public programs
- Margin of optimization, and
- Program efficacy with regard to return on investment and achievement of the objectives of universal access and reduction of HIV morbidity, mortality, and transmission

The report shows the progress in the last two years in care and antiretroviral treatment and how these advances are related to changes in the WHO recommendations.

Preparation of the report was supported by the joint efforts of several key partners in the region, such as the Horizontal Technical Cooperation Group of Latin America and the Caribbean and civil society networks.

The data in the report are taken from data submitted by the participating countries to UNAIDS and WHO in 2010, 2011, and 2012; from the results of surveys of civil society groups; and data from specific national analyses on the HIV treatment cascade (for example, analyses prepared by Cuba's National HIV Program). A summary (Excerpt) of the conclusions of the study Results of the Analysis of Antiretroviral Drug Prices in the Area of the Horizontal Technical Cooperation Group of Latin America and the Caribbean, by the GCTH, was also used and is printed in its entirety at the end of this report.

Results

In Latin America and the Caribbean, ART is an important component of spending on HIV. In 2009–2010, regardless of the financing source, 70% of spending on HIV was allocated to treatment and care,

¹ The analytical framework was updated by consensus with the GCTH.

and 18% to prevention. Of the total expenditure, 94% was covered by national funds, most of which were also allocated to treatment and care. Spending on antiretroviral treatment also makes up a significant proportion of the HIV care budget, since, on average, it amounts to 75% of the budget in countries of Latin America and the Caribbean (2009–2010). The cost variations of the main antiretroviral (ARV) regimens among countries in those subregions are considerable; in fact, the highest cost can be up to 77 times higher than the lowest. For example, for the regimen of tenofovir (TFV)/emtricitabine (FTC), 300 mg/200 mg in fixed-dose combination + efavirenz (EFV), 600 mg in tablet form, the annual cost ranges between US\$ 119² and US\$ 9,174, with a median of US\$ 1,579.

Of the 42 countries and territories analyzed, 62% finance ART without external support. Furthermore, dependency on external financing has decreased over the years. Twelve of the countries classified as having average-to-high financial dependency moved toward lower financial dependency between the period 2007–2008 and 2013. Nevertheless, progress is slow: since 2007–2008, 10 of the 13 countries classified as highly dependent still remain so. These highly vulnerable countries represent 9% of ART patients, slightly less than in 2010, when highly financially vulnerable countries represented 11%.

With regard to the new recommendation in the WHO 2013 guidelines (2) to initiate ART in asymptomatic adults with a CD4 count of under 500 cells/mm³, to date seven countries have adopted it in their guidelines: Argentina, Belize, Bolivia, Brazil, Costa Rica, Ecuador, and Honduras. Among the rest, the national guidelines in eight countries are already under review and the new criteria will soon be adopted. With respect to protocols for preventing mother-to-child transmission of HIV, 20 of the 34 countries that have reported data recommend option B+.³

The number of patients in antiretroviral treatment in Latin America and the Caribbean continues to grow; in December 2012, the number reached 725,000 (715,000 in low- and middle-income countries), of which approximately 26,900 are children under 15 years of age (26,700 in low- and middle-income countries). In 2012, 75% [66%–85%] of all the patients who meet the WHO criteria for treatment under the 2010 guidelines receive ART, as well as 67% [50%–82%] of children under the age of 15. In the same year, ART coverage rose two percentage points as compared to 2011. Furthermore, Argentina, Barbados, Brazil, Chile, Cuba, Guyana, and Mexico achieved universal access to treatment in 2012. ARV treatment coverage for Latin America is 76% [66%–87%] and for the Caribbean, 71% [65%–77%].

In 2012 in the region, 71% of the patients in ART received first-line drugs, similar to the rates in 2010 (73%). Of the rest, 27% received second-line treatment and 2.5% received third-line treatment.

With regard to compliance with the WHO recommendations on antiretroviral regimens, in 2012, 78% of adults who were in first-line treatment and 39% of those in second-line treatment received WHO-recommended regimens. From 2010 to 2012, compliance with the WHO-recommended regimens increased by 13 percentage points for first-line treatment and by 12 points for second-line treatment (data from 21 countries that provided information for both years on first- and second-line treatment).

² All costs in this document are expressed in US dollars (US\$) unless otherwise indicated.

³ It consists in initiating triple ARV treatment in all pregnant women with HIV, regardless of their CD4 count, and continuing the treatment for the rest of their life.

With regard to the administration of the TDF+ (FTC or 3TC) + EFV regimen recommended by the WHO as the preferential first-line treatment, 16 out of 25 countries reported that they have adopted the recommendation in their national standards. Furthermore, the percentage for use of the preferred regimen increased in 17 countries in 2012, compared to the 2010-2011 period, and 22% of patients in first-line treatment received the regimen in 2012, compared with 7% in 2010.

Although there have been a high number of patients in the preferential regimens, the number of regimens in use in Latin America and the Caribbean continues to be high. The regional average is 11 different regimens for first-line treatment and 15 for second-line treatment, similar to 2010.

In 2012 only 4% of patients in the region received treatment with obsolete or inappropriate ARVs, three percentage points less than in 2010. A comparison of the information from 2012 and 2010 shows a reduction in use of obsolete or inappropriate ARVs in Belize, Bolivia, Cuba, Ecuador, Paraguay, Dominican Republic, and Uruguay.

The ARV stock-out situation improved in 2012; but 45%, or 14 out of 31 countries, still reported at least one stockout episode. In 2010, the figure was 54% (14 out of 26 countries).

Although in the majority of countries less than two viral load examinations are conducted per patient on ART per year (1.8 in 2012), an increase of 33% is seen with respect to 2010 when comparing medians.

The ARV stock-out situation improved in 2012; but 45%, or 14 out of 31 countries, still reported at least one stock-out episode. In 2010, the proportion was 54% (14 out of 26 countries).

An analysis of the number of HIV tests per 1000 population shows that, in 2012, the figure was 36 per 1000 population (median from 29 countries), that is, some 23 million people were tested and counseled for HIV in the countries studied. With respect to this indicator, Latin America and the Caribbean, as a region, occupies second place among world regions of medium and low income, since a higher rate is only found in Sub-Saharan Africa. Among the different strategies used to conduct the HIV testing in the region, prenatal care for pregnant women stands out, with a coverage of 63% in 2012. Strategies for services that offer HIV tests to patients with tuberculosis have achieved high coverage in some countries, but the regional figures remain low and grow only slowly. HIV test coverage was 39% in 2006 and 52% in 2011. An obstacle faced by many countries in promoting earlier diagnosis of HIV infection is the persistence of diagnostic algorithms that depend on a Western Blot confirmation test or other complex techniques and many intermediate tests. Of the 42 countries with data on this subject, 40% still use the Western Blot test for confirmation exclusively. The stock-out of diagnostic reagents and limited information on the diagnostic yield of the testing strategies offered also prevent improvement in the early diagnosis of HIV; this is a challenge in the region. In 2012, in half of the countries, 40% or more of patients had an advanced stage of immunological depletion (<200 CD4 cells/mm³) at the time of the first determination of their CD4.

Executive Summary

According to the last reported data, collaborative activities between tuberculosis and HIV programs at the national level have advanced little. Providing antiretroviral treatment to patients with both infections remains about 63% in 2011, virtually unchanged since 2007.

Community participation in the delivery of HIV diagnosis and treatment services is irregular and dependant on external funding in most cases. In the delivery of ART services, only 5 out of 14 countries finance community participation with national funds; in the remaining countries, it is financed mainly by the Global Fund. However, 50% of countries already have standards that include community participation in the delivery of health care and treatment services.

In 2012, in half of the countries, 40% or more of patients had an advanced stage of immunological depletion (<200 CD4 cells/mm³) at the time of their first CD4 determination.

In short, the region has achieved major advances in the expansion of ARV treatment and is close to closing the gaps in universal coverage for the treatment.

There remains the question of whether the region is taking full advantage of the benefits offered by ARV treatment, specifically with regard to reducing new HIV infections and mortality. For LAC to reach the end of the HIV epidemic, the challenges to expanding treatment need to be addressed. The first challenge is to achieve earlier access to HIV diagnosis. Increased efforts need to be made to expand HIV testing and counseling as well as appropriate strategies for reaching the various populations. The second challenge is to achieve quality care that will maximize retention in the ART program and reduce viral load to undetectable levels in all the patients. Bringing services to the population, community participation, optimization of treatments, and virological monitoring are key elements for achieving quality care.

This second report, as a regional public benefit, lays out the progress made and the gaps that persist in Latin America and the Caribbean; it is hoped that, based on essential strategic information, dialogs will be encouraged between key partners in the different countries so as to support joint progress toward the contracted commitment to zero new infections and zero deaths from HIV.

Since the launch of the Treatment 2.0 (T2.0) initiative, ART has become much more available throughout the world and in our region. The expansion of antiretroviral treatment has been given new impetus at the highest political levels by the promotion of scientific advances showing that ART saves lives and stops the transmission of HIV (3).⁴ However, international financing has stagnated or declined (1). In June 2013, the World Health Organization published unified directives on the use of antiretroviral drugs for the treatment of HIV infection (2) that contain new recommendations involving a worldwide increase in the number of people who will need antiretroviral treatment. Since 2010, the availability of WHO-prequalified generic antiretroviral drugs has improved, mainly the generic formulation in fixed-dose combination (FDC) in the first-line preferred regimen.⁵ Furthermore, prices proposed by manufacturers for first- and second-line regimens continue to decline—in great part due to competition from new suppliers entering the generic drug market. Nevertheless, prices of the newest drugs continue to be very high, mainly due to patents registered in countries like India, that block competition from generics (4).

In Latin America and the Caribbean (the region),⁶ the number of patients in antiretroviral treatment has continued to grow and the region heads the world among middle- and low-income countries with respect to providing ART. In the last two years, the countries in the region have adopted T2.0 and have incorporated it into their national programs, supported by the new WHO antiretroviral treatment guidelines. At the same time, they are working to achieve the sustainability of the antiretroviral treatment and to incorporate technical innovation. They have formed joint T2.0 missions, made plans to transition patients to more effective and less toxic regimens, and started updating national guidelines to align them with the WHO guidelines.

In the region during this period, use of the HIV care continuum model and monitoring of key events in the HIV treatment cascade has also been strengthened: from early diagnosis, linkage to the different services, early treatment, and continuous monitoring, to retention in antiretroviral treatment. Furthermore, in 2011, the countries agreed on the strategic indicators for managing and evaluating ART programs.

In 2012, the Pan American Health Organization published Antiretroviral Treatment in the Spotlight: a Public Health Analysis in Latin America and the Caribbean.¹ The present report is a continuation of that work and takes advantage of the experience with Treatment 2.0 and its progress in the countries. The critical analysis in the first report is here refined with a view to pointing out priority aspects of managing ART programs and promoting strategic monitoring of the HIV treatment cascade. The present report is the fruit of collaboration with key partners in the response to HIV in Latin America and the Caribbean, such as the HTCG and civil society networks.

In addition to refining the earlier analytical framework, this report retains its more regional aspects and adds other elements to support monitoring of the HIV care continuum.

⁴ Although there was circumstantial evidence of the effect of treatment on HIV-positive persons in reducing the risk of transmission of the virus to their sex partners, it was not until 2011, when the results of the HIV Prevention Trials Network (HPTN) 052 were published, that early treatment of HIV was shown to have great preventive benefits. HPTN 052 was designed in part to assess whether early administration of antiretroviral treatment could prevent the sexual transmission of HIV between heterosexual partners when one is HIV+ and the other is not. The results showed that the risk of transmitting HIV to a non-infected partner was lowered by 96%.

⁵ Fixed-dose combination with lamivudine, prequalified in October 2010, and with emtricitabine in October 2011.

⁶ In this document the expression "region" or "regional" refers to Latin America and the Caribbean, the countries of which are the subject of this report.

3. Methodology

The operational criteria for analyzing the sustainability and efficacy of an ART program are the cost of priority ARV regimens, dependency on external financing for ART in public treatment programs, the margin of optimization, and programming efficacy in terms of return of investment, fulfillment of the objectives of universal access and reduction of HIV morbidity, mortality and transmission.

For this second report, the analytical framework was adapted to the matters most important in 2013, taking available information into account. Table 1, below, shows the analytical framework of the first report and of the current report.

Table 1

Comparison of the analytical framework used in Antiretroviral Treatment in the Spotlight: a Public Health Analysis in Latin America and the Caribbean 2012 and in this report

Framework of analysis in regional report 2012	Framework of analysis in regional report 2013
Cost per patient in ART	---
Cost according to first-, second- and third-line regimens in use	Cost of priority ARV regimens
Percentage of spending on antiretroviral treatment financed by external funds	Percentage of spending on antiretroviral treatment financed by external funds
Compliance with WHO recommendations (for first- and second-line treatment)	Compliance with WHO recommendations (for first- and second-line treatment)
---	National treatment guidelines: year last updated and criteria for initiating ART
Number of first- and second-line ARV regimens	Number of first- and second-line ARV regimens
Percentage of patients receiving obsolete or inappropriate drugs	Percentage of patients receiving obsolete or inappropriate drugs
ARV stock-out episodes	ARV stock-out episodes
ART coverage	ART coverage
Retention at 12 months	Retention at 12 months
Rate of change from first- to second-line treatment	Rate of change from first- to second-line treatment
Percentage of patients in first-, second- and third-line treatment	Percentage of patients in first-, second- and third-line treatment
Intensity of virological monitoring: number of viral load examinations per ART patient per year	Intensity of virological monitoring: number of viral load examinations per ART patient per year
---	Number of annual HIV screening tests of persons over 15 years of age per 1 000 population over 15 years of age
Percentage of HIV testing in tuberculosis patients and pregnant women	Percentage of HIV testing in tuberculosis patients and pregnant women
Percentage of patients in care with baseline CD4 <200 cells/mm ³ (data from published articles)	Percentage of patients in care with baseline CD4 <200 cells/mm ³ (data from national programs and, if none, from published articles)
---	Percentage of patients with undetectable viral load
---	Community participation in peer intervention at test and ART centers
---	Program tipping point: ratio of new infections to new persons in antiretroviral treatment

ART: antiretroviral treatment; ---: subject not included; ARV: antiretrovirals.

3.1 Calculations and Definitions

Other aspects analyzed in this report are regional spending on antiretrovirals based on reference prices for first-, second- or third-line treatment, and potential ARV regimen savings relative to reference prices. The method used to make these calculations is explained below.

Calculation of regional spending on ARV per line of treatment and patient

The expenditure per patient and regimen is the result of multiplying the price of each regimen by the number of patients in the regimen. The per-line-of-treatment product of the multiplication is divided by the total number of patients in the line. The 2012 Doctors Without Borders (DWB) reference prices were used (5). In the case of regimens prescribing fixed-dose combinations, the reference prices for combination drugs were used even if they were not specified by the country. The average expenditure per patient and line is the sum of the price of all regimens multiplied by the number of patients in each regimen divided by the number of total patients in the line.

Tipping point between new infections and treatment

The ratio between estimated new infections in a period and the people who begin ARV treatment in that period can be an indicator of the quality of the response to HIV. When the inflection point or tipping point is reached, where the number of people who begin treatment is higher than the number of new infections, the response to HIV is beginning to advance ahead of the epidemic. This is derived from the concept of treatment as prevention, in which ARV treatment significantly reduces HIV transmission and, as a result, there are fewer new infections.

The following definitions were agreed upon by consensus with the Horizontal Technical Cooperation Group in Latin America and the Caribbean in 2010. The heads of national HIV programs and representatives of civil society organizations participated in this group.

- **ARV stock-out:** situation in which a product cannot be dispensed due to lack of supplies and which causes the interruption of treatment in at least one patient.
- **Stock-out risk:** level of supplies under the established minimum or the need for setting up unplanned mechanisms to prevent a stock-out (emergency purchases, loans, etc.).

Another definition:

- **% CD4 <200 at start of care:** percentage of patients with baseline CD4 <200 cells/mm³ relative to total number of patients with a CD4 baseline measurement, in the year under study.

3.2 Data Sources

The data were submitted by the countries to WHO and UNAIDS in national reports on progress in the world response to AIDS 2013 and the health sector response to HIV. Data were also taken from the WHO report on the use of antiretroviral drugs, reported by the competent agencies in each country to PAHO/WHO, and from published secondary sources. The data on coinfection by tuberculosis and HIV come from the WHO publication entitled Global Tuberculosis Report 2012.⁷

Information on community and civil society participation comes from a survey conducted in 2013 among the focal points in the civil society networks that belong to the HTCG in Latin America and the Caribbean, through which the survey was distributed. For English-speaking countries, key informants in the civil society were contacted (Annex 3).

Information on ARV drug stock-out episodes was obtained from:

- National reports on the health sector response to HIV/AIDS infection that contained the number and percentage of establishments that dispense ARV and that included at least one stock-out episode.
- WHO surveys on antiretroviral drug use that report the number of stock-outs and their causes .
- Survey by the HTCG and PAHO on national civil society groups, including HIV-positive patient networks, that used the Likert scale to quantify the perception of national civil society groups on how well an uninterrupted supply of ARV is maintained in the country.

The data on new infections and the number of people who need ARV treatment come from UNAIDS; the data on antiretroviral procurement come from the PAHO Strategic Fund; the data on the cost of antiretrovirals come from the study Results of the Analysis of Antiretroviral Drug Prices in the area of the Horizontal Technical Cooperation Group of Latin America and the Caribbean, with probable date of publication in December 2013.

For the calculation of regional spending on ARV, the reference prices published by Doctors Without Borders in 2012 were used (5).

⁷ Available at http://www.who.int/publications/global_report/en/.

4.1 Financing Antiretroviral Drugs

The countries in the region spent a total of US\$ 1.95 billion on HIV programs and services during the latest year reported (between 2007 and 2011). The countries that provide detailed information on expenditures showed that a high percentage of the resources are allocated to treatment and care (70%) and prevention (18%).

National financing sources covered 94% of the total expenditure, and the majority of national funds were allocated to treatment and care. International funds represented 6% of total HIV financing in the region and were allocated mainly to populations at higher risk and to prevention (6,7).

In 62% of the 42 countries and territories with available information, ART financing is independent of external support.

In 62% of the 42 countries and territories with available information, ART financing is independent of external support, a trend that has been growing over the years. In total, 12 countries with average-to-high dependency on external financing moved towards categories of less dependency⁸ between 2007-2008 and 2013. Nevertheless, progress is slow, since in 2007-2008 there were 13 countries with high dependency and currently there are still 10 (Table 2). These countries of high vulnerability represent 9% of the patients in ART, slightly less than in 2012, when the figure was 11%.

⁸ For the purpose of this analysis, high dependency means that 75 to 100% of funds for antiretroviral treatment come from international sources.

Table 2

Progress in dependency on external funding for antiretroviral treatment, Latin America and the Caribbean, by country, 2007-2008 to 2013

	High	Medium	Low	No dependency	
	75%-100% external funding of ARV	20%-75% external funding of ARV	5%-20% external funding of ARV	0%-5 % external funding of ARV	
2007-2008	Antigua and Barbuda Bolivia Dominica Grenada Guyana Haiti Jamaica Nicaragua St. Kitts and Nevis St. Vincent and the Grenadines Dominican Republic Saint Lucia Suriname	Cuba Guatemala Anguilla Belize Ecuador Honduras British Virgin Islands Monserrat Peru El Salvador Paraguay		Argentina Bahamas Barbados Brazil Chile Colombia Costa Rica Mexico Panama Trinidad and Tobago Uruguay Venezuela	
2013	Antigua and Barbuda* Bolivia Dominica Grenada Guyana Haiti Jamaica ^a Nicaragua St. Kitts and Nevis ^a St. Vincent and the Grenadines	Cuba Guatemala Dominican Republic Saint Lucia^a	El Salvador Paraguay	Anguilla Belize British Virgin Islands Ecuador Honduras Monserrat Peru Suriname	Argentina Aruba Bahamas Barbados Brazil Cayman Islands Chile Colombia Costa Rica Curaçao Mexico Netherlands Antilles Panama Sint Maarten Trinidad and Tobago Turks and Caicos Islands Uruguay Venezuela

Source: WHO survey on antiretroviral use, 2013. Antiretroviral Treatment in the Spotlight: A Public Health Analysis in Latin America and the Caribbean 2012. Washington DC: Pan American Health Organization; 2012.

^aData from 2011

4.2 Cost of Antiretroviral Treatment Regimens

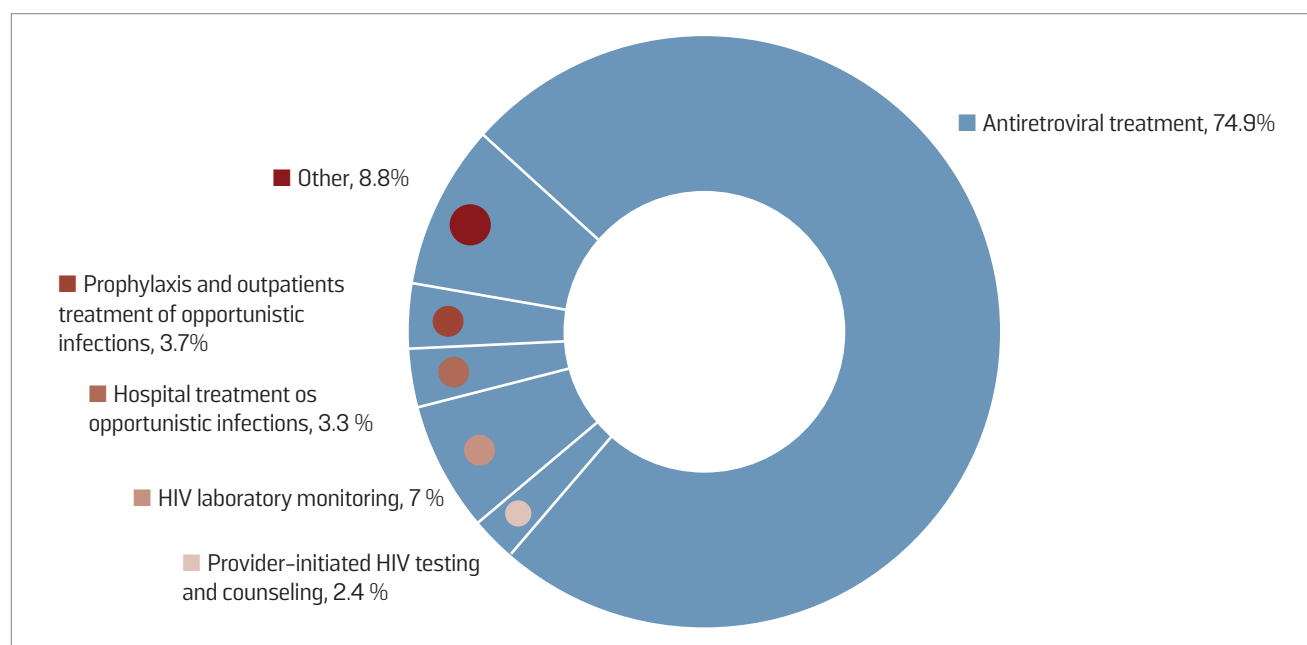
Spending on antiretroviral treatment is a large component of spending on HIV care and represents 75% of the care and treatment budget in the average country in Latin America and the Caribbean (2009–2010) (Figure 1) or 46% of the total HIV budget.

The new WHO directives recommend expanding ART to a greater number of people. In the region it is estimated that, in 2013, around 1.4 million people will need treatment, that is, approximately 400,000 more than under the recommendations in previous directives. This will mean an estimated increase in regional spending on ARV of \$250 to \$475 million or 13% to 24% of the total expenditure on HIV.

Although price is not the only determinant of access to the drugs, it can be an important obstacle to the widespread use of essential health products, in particular, those that come at high cost (8). When analyzing spending on ARV, the distribution of patients by line of treatment must be considered. In 2012 in the region, according to reference prices, spending on first-line drugs would represent 48% of total ARV spending, while spending on second- and third-line drugs would represent 41% and 11%, respectively.

Figure 1

Distribution of spending on HIV care and treatment in Latin America, 2009–2010



Source: UNAIDS. National reports on advances in the world response to AIDS 2010–2013. Data from 17 countries in Latin America, latest year reported.

Standardized international prices of ARVs continue their downward trend; for example, in a single year (2012 to 2013) the price of the preferred regimen (TFV+ 3TC+ EFV) declined 19% (4). As a result, an important reduction in regional expenditure is seen per patient and line, according to reference prices.

Recent studies show significant variations in the prices of ARVs among the countries of Latin America and the Caribbean, which indicates opportunities for cutting costs in the procurement of these essential drugs (9). Therefore, purchasing quality ARVs at the lowest possible price is difficult, but nevertheless indispensable for maintaining and expanding HIV

treatment in order to achieve the goal of universal coverage. Data from the study conducted in 2012–2013 by the HTCG on antiretroviral drug prices show cost variations of the main ARV regimens, where the highest price can be up to 77 times higher than the lowest. For example, for tenofovir/emtricitabine (300/200 mg) in fixed-dose combination + efavirenz (600 mg) tablets, the annual cost ranges between \$119 and \$9,174, with a median of \$1,579 (Table 3). Cost variations for this regimen are associated mainly with the unit price of tenofovir/emtricitabine.

For the same regimen (tenofovir/emtricitabine/efavirenz [300 mg/200 mg/600 mg]), but in a single tablet in a fixed-dose combination, the annual cost ranges between \$158 and \$2,643, with a median of \$625. As a result, for the period 2012–2013, a comparison of the prices of the combination in a single tablet and the combination in two tablets shows that the single tablet is more economical (Figure 2).

⁹ According to the regimens in use and international reference prices from Doctors Without Borders.

Table 3

Standardized expenditure (minimum reference price) per patient and per line of treatment, Latin America and the Caribbean, 2010 and 2012

Line of treatment	Standardized expenditure per patient 2010* (US\$)	Standardized expenditure per patient 2012* (US\$)
First	316	224
Second	810	500
Third	2 321	1 419

Source: Prepared by PAHO. Country responses to the WHO survey on antiretroviral use, 2013.

Note: *Expenditure per patient is based on standardized reference prices and assumes that countries have access to those prices.

Furthermore, the annual cost of treatment per patient for zidovudine/lamivudine (300 mg/150 mg) + efavirenz (600 mg) in tablets ranges widely between \$126 and \$1,959, that is, approximately 15 times more expensive. The median cost is \$352.

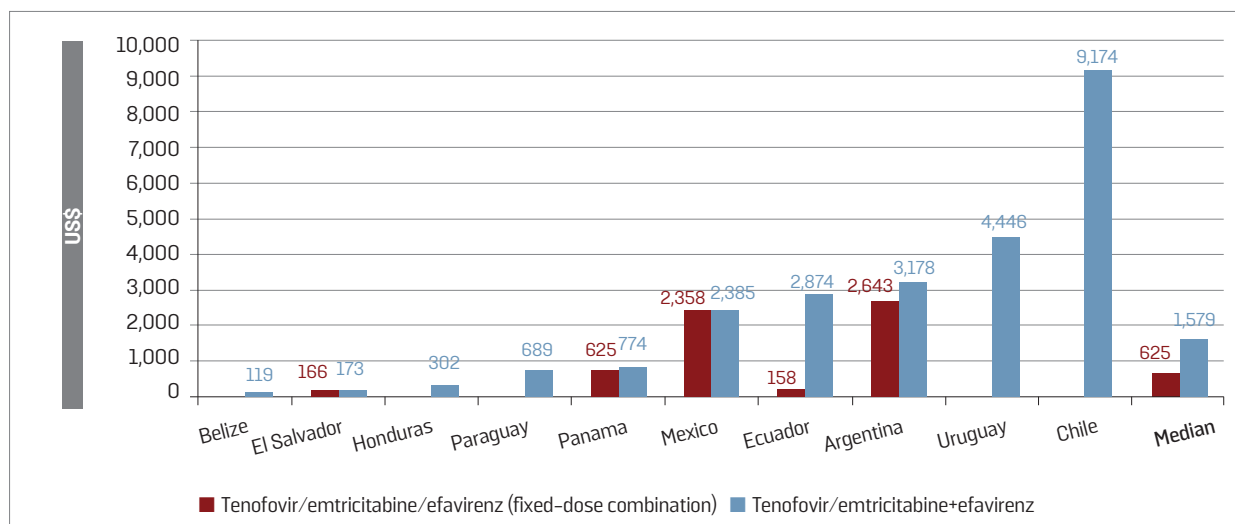
In second-line treatment, the regimen of zidovudine/lamivudine (300 mg/150 mg) in tablets + lopinavir/ritonavir (200 mg/50 mg) in tablets, has an annual cost per patient which can be 12 times higher in one country than in another of those analyzed, that is, between \$331 and \$4,035 (Figure 3).

For lopinavir/ritonavir (200 mg/50 mg), if the method of purchase is regarded as the cause of the difference in purchase prices, the highest prices were seen in direct purchase and local competitive bidding, and the lowest prices mainly in international competitive bidding. For zidovudine/lamivudine, there is no apparent relationship between price and method of purchase.

Considering the greater percentage weight of the cost of lopinavir/ritonavir (200 mg/50 mg) in this regimen, the five countries falling above the average annual cost acquire the drug through local competitive bidding or by direct purchase from the manufacturer and there are no other generic or proprietary products available in the country (except for one country), that is, there is no competition in their markets for that specific drug. However

Figure 2

Annual cost per patient of tenofovir/emtricitabine + efavirenz (2012) and of tenofovir/emtricitabine/efavirenz in a fixed-dose combination (2012-2013), by country



Source: Horizontal Technical Cooperation Group (HTCG) with technical assistance from the Department of AIDS and STDs and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

these characteristics common to five countries are not sufficient to draw conclusions about the large variation in annual cost per patient.

For tenofovir/emtricitabine (300 mg/200 mg) tablets + lopinavir/ritonavir (200 mg/50 mg) tablets, the annual cost in a given country can be 29 times higher than in another, ranging between US\$ 349 and US\$ 10,124, with a median of US\$ 3,312. Cost variations for this regimen are associated mainly with the variation in the unit price of emtricitabine/tenofovir (Figure 4).

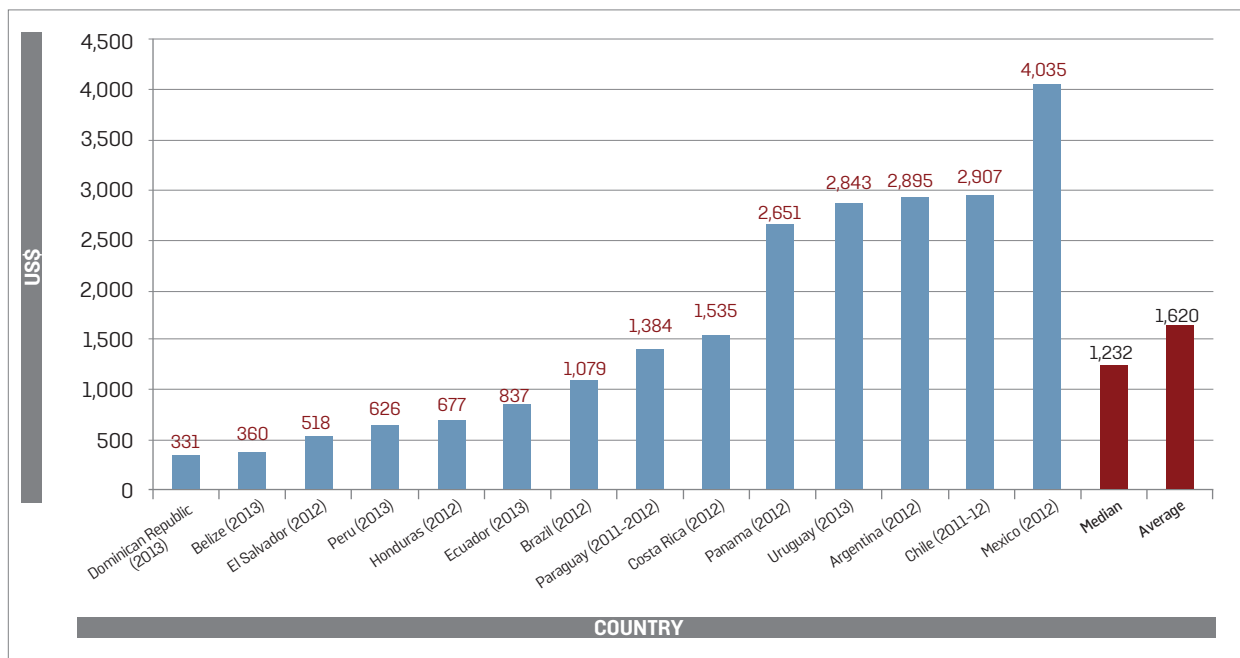
Given the high proportional weight of the cost of ARVs in total spending on the HIV response and the high variability in antiretroviral drug purchase prices in the region, strategies must be sought to reduce

The regimen of zidovudine/ lamivudine (300 mg/150 mg) in tablets + lopinavir/ritonavir (200 mg/50 mg) in tablets, has an annual cost per patient which can be 12 times higher in one country than in another.

the cost. One strategy recommended for improving the efficiency of antiretroviral drug purchasing is to take advantage of market and trade flexibility (10, 11). The use of quality-assured, prequalified generic drugs has been an effective way to obtain greater savings than those achieved in differential price programs (7).¹⁰ Another innovative option

Figure 3

Annual cost per patient for zidovudine/lamivudine + lopinavir/ritonavir, 2011-2013, by country



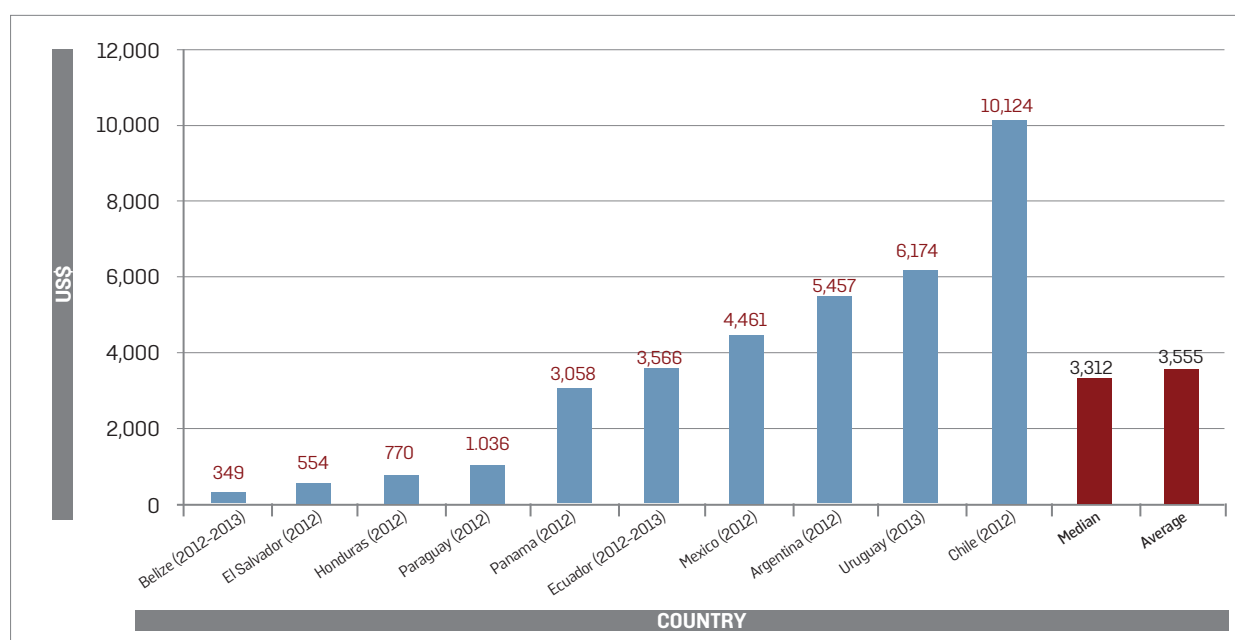
Source: Horizontal Technical Cooperation Group with technical assistance from the Department of AIDS and STDs and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG; 2013.

is pooled procurement so as to improve prices and other aspects of managing the drug supply chain. Pooled procurement has been defined as "a purchase made by a purchasing office on behalf of a group of institutions, health systems, or countries" (12, 13). The PAHO Strategic Fund offers an international procurement service for affordable quality antiretrovirals and, whenever possible, group purchases to take advantage of economies of scale (Annex 1).

¹⁰ Differential pricing refers to the prices established by pharmaceutical companies for their proprietary drugs according to the economic situation in each country. Companies use different selection criteria for setting differential prices, that is, not all countries or entities (for example, governments, non-governmental organizations, private sector entities) can access the same prices.

Figure 4

Annual cost per patient for tenofovir/emtricitabine + lopinavir/ritonavir, 2012-2013, by country



Source: Horizontal Technical Cooperation Group (HTCG) with technical assistance from the Department of AIDS and STDs and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of prices of antiretroviral drugs in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG; 2013.

4.3 Optimization of Antiretroviral Treatment

4.3.1 National regulations on antiretroviral treatment in Latin America and the Caribbean

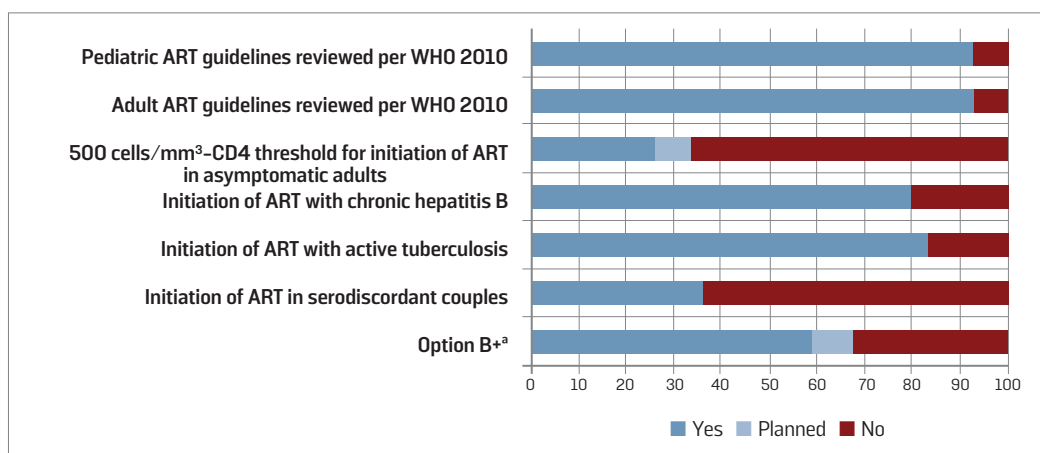
National guidelines based on scientific evidence for antiretroviral treatment are an indispensable element of clinical excellence, since they ensure quality of care and reduce variations in medical practice. Over the years, to support countries preparing their national guidelines, WHO has published the most up-to-date, evidence-based scientific recommendations for ART. The latest were published in June 2013 and before that, in July 2010.

In 2013, out of the 27 countries of Latin America and the Caribbean that reported on their national directives, 93% had reviewed their guidelines for antiretroviral treatment of adults,

adolescents, and children according to the 2010 WHO recommendations (Figure 5, Table 4, and Annex 2). Furthermore, with regard to the new recommendation in the WHO 2013 guidelines to initiate ART in asymptomatic adults with a CD4 count < 500 cells/mm³, to date Argentina, Belize, Bolivia, Brazil, Costa Rica, Ecuador and Honduras have included it in their guidelines. Brazil plans to modify its policy soon and to offer treatment to all HIV+ patients regardless of their CD4 count. Several countries are reviewing their national guidelines and will soon adopt the criterion of initiating treatment at < 500 cells/mm³. At a meeting held to launch the WHO directives on the strategic use of antiretrovirals in Latin America, which took place in Argentina in August 2013, many countries showed interest in adapting their national guidelines to the WHO directives. Accordingly, the information presented in Figure 5 should be considered a baseline situation since it is anticipated that many more countries will review and update their national standards and adopt the WHO recommendations.

Figure 5

Percentage (%) of countries of Latin America and the Caribbean that adapted their national guidelines to WHO recommendations and criteria for initiation of ARV treatment, August 2013



Source: WHO survey on antiretroviral use, 2013.

Note: After the Meeting for the launch in Latin America of the WHO directives on the strategic use of antiretrovirals (ARV) in August 2013, many more countries showed an interest in adapting their national guidelines to the WHO directives. That information will be updated in the next round of reports.

^aInitiate triple treatment with ARV for all pregnant women with HIV, regardless of their CD4 count, and continue the treatment for life.

**Table
4**
Criteria in national guidelines in Latin America and the Caribbean for antiretroviral treatment initiation, by criterion and country, 2013

Initiation <500	Regardless of CD4 count in patients with tuberculosis	Regardless of CD4 count in patients with chronic hepatitis B	Regardless of CD4 count in patients with serodiscordant partner	B+ for pregnant women ^a
Argentina Belize Brazil Bolivia Costa Rica Ecuador Honduras	Argentina Belize Bolivia Brazil Costa Rica Cuba Dominica Ecuador El Salvador Grenada Guyana Haiti Honduras Mexico Panama Paraguay Suriname Uruguay Venezuela	Argentina Barbados Belize Brazil Costa Rica Cuba Dominica Ecuador Grenada Haiti Honduras Mexico Nicaragua Panama Paraguay Peru Suriname Turks and Caicos Islands Uruguay Venezuela	Argentina Belize Brazil Costa Rica El Salvador Honduras Turks and Caicos Islands Uruguay Venezuela	Argentina Belize Bolivia Chile Colombia Costa Rica Cuba Curaçao Ecuador Grenada Guatemala Guyana Haiti Honduras Mexico Nicaragua Peru Suriname ^b Uruguay Venezuela
Countries that plan to update their guidelines in 2013 to adapt them to the WHO 2013 guidelines	Bolivia, Colombia, El Salvador, Guyana, British Virgin Islands, Mexico, Nicaragua, Peru Brazil and Paraguay for the recommendations for children Belize and Brazil for pregnant women Brazil plans to modify its treatment initiation policy and offer treatment to all patients regardless of their CD4 count.			

Source: Country responses to the WHO survey on antiretroviral use, 2013.

Notes:

^aInitiate the administration of triple treatment with ARVs in all the pregnant women with HIV, regardless of their CD4 count and continue treatment for life.

^bSuriname has not incorporated it into its national guidelines but it is incorporated into clinical practice.

A significant proportion of countries recommend initiating ART regardless of the CD4 count in cases of active tuberculosis (19/23) and chronic hepatitis B (20/25), but only 9 out of 25 countries recommend ART to people with HIV infection who have serodiscordant sexual partners (Figure 6).

With regard to the protocols for preventing mother-to-child transmission of HIV, of the 34 countries that have reported data, 20 recommend the B+ option, which consists in initiating the administration of triple treatment with ARVs to all pregnant women with HIV, regardless of their CD4 count, and continue the treatment for life (Figure 6).

4.3.2 Compliance with WHO recommendations on antiretroviral first- and second-line treatment

The regimens recommended for first- and second-line treatment of adults according to the new consolidated WHO guidelines (2) are shown in Table 5.

In the region in 2012, 78% of the adults in first-line treatment received ARV regimens recommended by WHO as well as 39% of those in second-line treatment,¹¹ although, depending on the country, these figures range between 28% and 100% for first-line treatment and between 0% and 95% for second-line treatment (Figure 6). Between 2010 and 2012, compliance with the WHO-recommended regimens increased in the region by 13 percentage points for first-line treatment and by 12 percentage points for second-line treatment (comparison of data from 21 countries who provided data both years for first-line treatment and 19 countries for second-line treatment).

In the period between 2010-2011 and 2012 an increase of more than 10 points in the percentage of patients under treatment is observed with WHO-recommended regimens in 12 out of 23 countries. That applies to Bolivia (first and second line), El Salvador (second line) and Dominican Republic and Venezuela (first line). Improvements also show in Belize and Cuba (first line), British Virgin Islands (first and second lines), Grenada, Nicaragua, Paraguay, and Peru (second line).

¹¹ The calculations for second-line treatment do not include data from Brazil or Argentina.

Table 5

Regimens recommended by the World Health Organization for antiretroviral treatment of adults, 2013

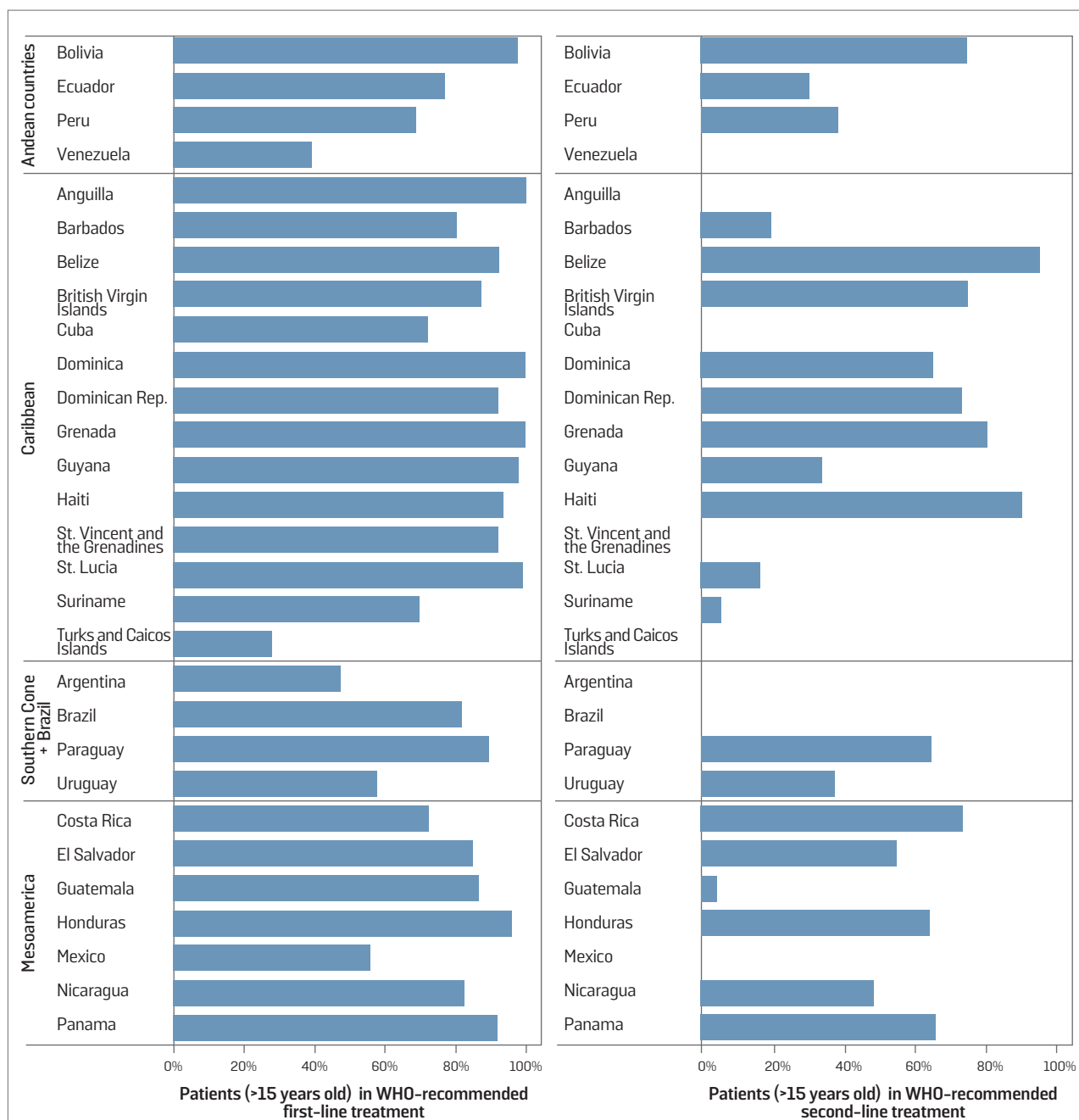
Antiretroviral treatment	First line	Second line
Preferential regimen	TDF+3TC (o FTC)+EFV	AZT+3TC+LPV/r AZT+3TC+ATV/r
Alternative regimens	AZT+3TC+EFV (o NVP) TDF+3TC (o FTC)+NVP	TDF+3TC (o FTC)+ATV/r TDF+3TC (o FTC)+LPV/r

Source: Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection 2013. Geneva: World Health Organization.

Notes: TFV: tenofovir; 3TC: lamivudine; FTC: emtricitabine; EFV: efavirenz; AZT: zidovudine; LPV/r: lopinavir/ritonavir; ATV/r: atazanavir/ritonavir.

Figure 6

Percentage (%) of patients (>15 years old) in WHO-recommended regimens, by line of treatment, 2012



Source: WHO survey on antiretroviral use, 2013.

Notes: Saint Lucia and Saint Vincent and the Grenadines: data for 2011. Argentina and Brazil: no data available for the second line. Anguilla, Cuba, Turks and Caicos Islands, Mexico, and Venezuela: The figure for the second line is 0%.

4.3.3 Use of the preferential first-line regimen (TFV/FTC or 3TC/EFV) recommended by the World Health Organization for adults and adolescents

Seventeen out of 25 countries reported that their national standards adopted the preferential regimen recommended by WHO for first-line treatment (TFV+FTC or 3TC+EFV) as their preferential first-line combination (Table 6).

For 2012, in 17 countries the percentage of use of the preferential regimen compared to the 2010–2011 period increased. For the region as a whole, the data from 27 countries for 2012 indicate that 22% of the patients under first-line treatment received the regimen; the figure was 14% in 2011 and 7% in 2010, according to the data from 17 and 22 countries, respectively (Table 7). In a comparison of the data from the 21 countries with available information for both 2010 and 2012, the percentage of patients in the preferred regimen increased from 7% to 22%.

Table 6

Countries whose national standard recommends the combination TFV+FTC or 3TC+EFV as the preferential regimen for first-line treatment, 2012

Countries that recommend TFV+FTC or 3TC+EFV ^a			
YES		NO	
Argentina ^b	El Salvador ^c	Colombia	Peru
Barbados	Guyana	Costa Rica	Suriname
Belize ^b	Guatemala	Cuba	Uruguay
Bolivia	Haiti	Grenada	
Brazil ^b	Honduras	Nicaragua	
British Virgin Islands	Mexico		
Dominican Rep.	Panama		
Ecuador	Paraguay ^b		
	Venezuela		

Source: WHO survey on antiretroviral use, 2013.

Notes:

^aTFV: tenofovir; FTC: emtricitabine; 3TC: lamivudine; EFV: efavirenz.

^bTFV+FTC or 3TC+EFV is one of several preferred regimens.

^cRegulation in process of being updated.

**Table
7**

Percentage of patients in the preferential first-line regimen (TFV+FTC or 3TC+EFV) ^a recommended by the World Health Organization, by country and by year, 2010 to 2012

Country	Patients in preferential first-line regimen (TFV+FTC or 3TC+EFV) (%)		
	2010	2011	2012
Anguila	0.0	0.0	0.0
Antigua and Barbuda	0.0	N/A	N/A
Argentina	2.2	4.8	6.6
Barbados	N/A	29.1	41.6
Belize	4.5	N/A	7.4
Bolivia	0.3	0.0	36.2
British Virgin Islands	N/A	6.7	12.5
Costa Rica	N/A	N/A	1.8
Cuba	0.0	0.0	0.0
Dominica	N/A	N/A	19.1
Dominican Republic	11.0	11.1	21.2
Ecuador	2.3	N/A	19.6
El Salvador	0.0	0.0	7.5
Grenada	0.0	3.5	12.5
Guatemala	54.8	57.0	57.8
Guyana	73.4	70.3	76.7
Haiti	N/A	N/A	18.5
Honduras	5.6	0.0	6.6
Mexico	39.9	N/A	43.4
Nicaragua	9.1	11.3	12.4
Panama	8.1	N/A	66.0
Paraguay	0.7	1.7	5.1
Peru	0.0	N/A	0.0
Saint Lucia	N/A	17.9	N/A
Saint Vincent and the Grenadines	N/A	11.1	N/A
Suriname	1.0	N/A	1.1
Turks and Caicos Islands	N/A	N/A	6.9
Uruguay	0.1	0.5	0.9
Venezuela	0.0	N/A	24.6
TOTAL	7.0	14.1	21.6

Source: WHO survey on antiretroviral use, 2011, 2012, and 2013.

Notes:

^aTFV: tenofovir; FTC: emtricitabine; 3TC: lamivudine; EFV: efavirenz; N/A: not available.

4.3.4 Number of first- and second-line antiretroviral treatment regimens

Since 2013, WHO has recommended preferred and alternative regimens by line, totaling six per line of treatment. Although the preferred regimens include more patients, as indicated in section 4.3.3, the number of regimens in use in Latin America and the Caribbean continues to be high (Figure 7). The regional average is 11 different first-line regimens and 15 different second-line regimens, similar to 2010, when the average was 12 and 15 first- and second-line regimens, respectively. Very few countries have sufficiently reduced the number of regimens in each line. However, the data shows more patients in a smaller number of regimens: 70% of patients are grouped in only 6 regimens (Table 8).

For children under 15 years of age, the number of regimens was lower than for adults, with a regional average of six regimens for both first- and second-line treatment (data from 24 countries) in 2012 (Figure 9). Upon comparing the 17 countries that have data for 2010 and 2012, no changes are observed in the regional average of the number of regimens in use.

Table 8

Changes in the number of regimens by line of treatment, 2010-2012

	First-line	Second line
Countries that increased the number of regimens	Argentina, Brazil, El Salvador, Grenada, Guyana, Honduras, ^a Panama, Paraguay, Peru, and Uruguay	Argentina, Brazil, El Salvador, Guyana, Honduras, ^a Mexico, Panama, Paraguay, Peru, Suriname, and Venezuela
Countries that reduced the number of regimens	Belize, Bolivia, Cuba, Dominican Republic, Ecuador, Suriname, and Venezuela	Bolivia, Cuba, Dominican Republic, Ecuador, Guatemala, Nicaragua, and Uruguay
Countries with the same number of regimens	Guatemala, Mexico, Nicaragua	---

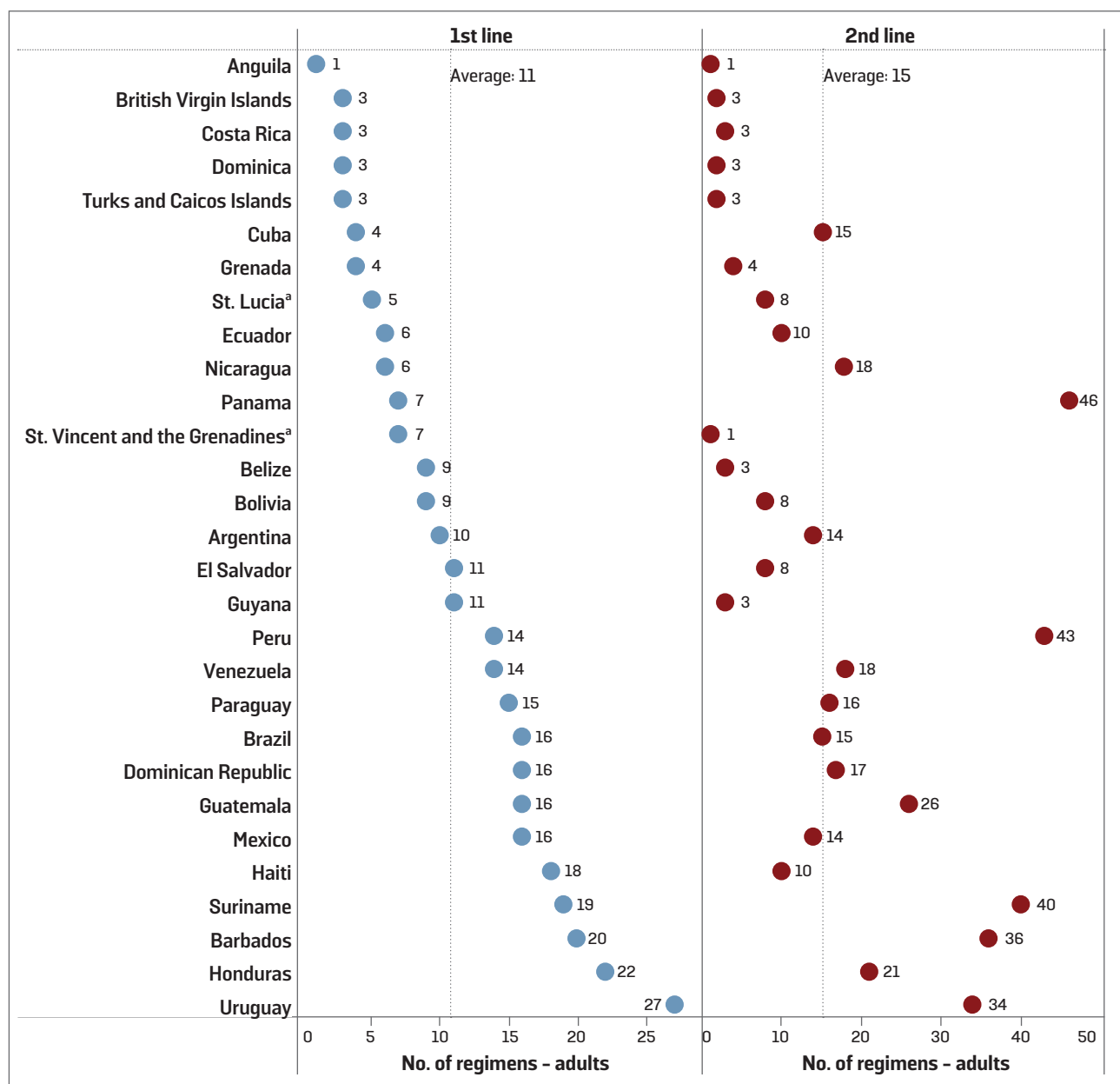
Source: WHO survey on antiretroviral use, 2011 and 2013.

Note: ^aIn Honduras in 2012, tenofovir was considered a first-line drug, which increases the number of regimens in comparison with 2010, but most fall into four regimens, plus 11 more regimens with didanosine (ddi), that will continue until didanosine supplies are exhausted.

---: Not reported

Figure 7

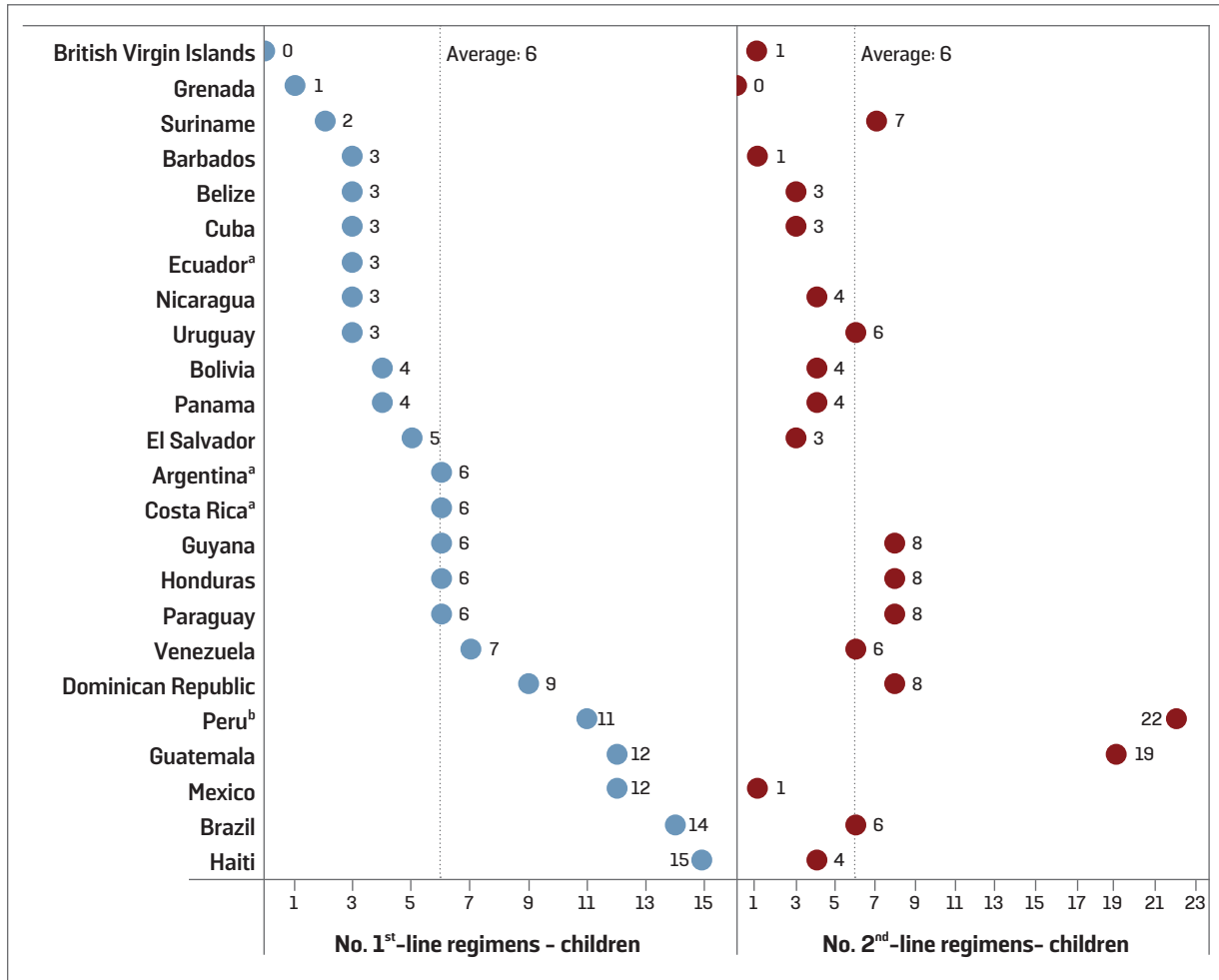
Number of different treatment regimens for adults, per line of treatment, 2012



Source: WHO survey on antiretroviral use, 2013
 Note: ^aData from Saint Lucia and Saint Vincent and the Grenadines are for 2011.

Figure 8

Number of different treatment regimens for children under 15 years of age, per line of treatment, 2012



Source: WHO survey on antiretroviral use, 2013.

Notes: Anguilla and Dominica have no children in antiretroviral treatment.

^aArgentina, Costa Rica, and Ecuador did not provide second-line regimen data.

^bThe data from Peru are for children under 17 years of age.

4.3.5 Use of obsolete or inappropriate drugs

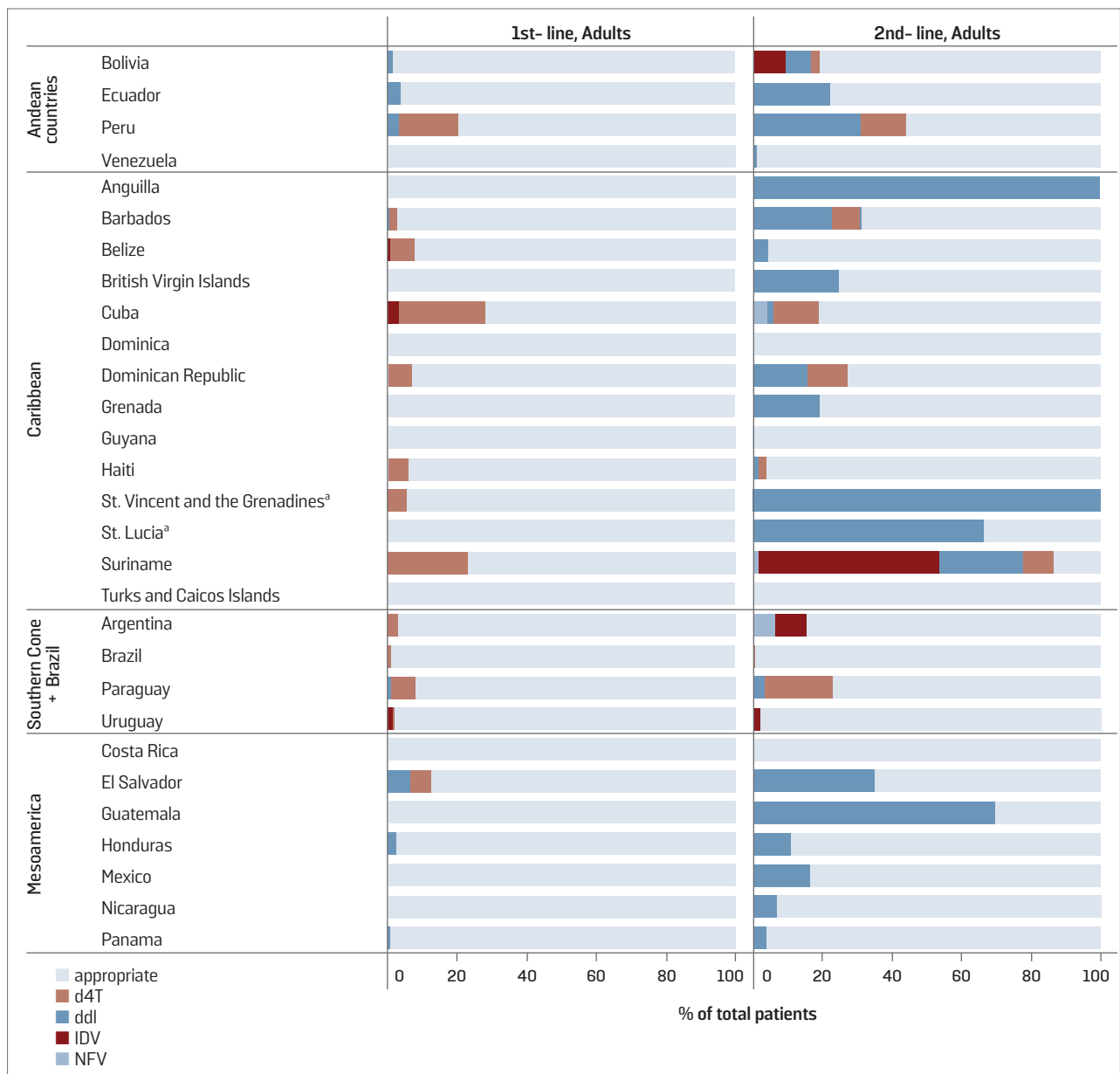
WHO recommends discontinuing the use of stavudine (d4T) as a first-line drug because of its high metabolic toxicity (strong recommendation and moderate-quality evidence). WHO adds that it should be administered only in exceptional cases where other ARVs cannot be used, for the shortest possible time and under strict monitoring (1). Nelfinavir was eliminated from the WHO Model List of Essential Medicines, and the use of other ARVs, such as didanosine or indinavir, should be limited due to lower efficacy, higher toxicity or both.

In 2012, 4% of the patients of the region, approximately 30,000 patients out of the 725,000 that receive ART, are being treated with obsolete or inappropriate ARVs.

In 2012, 4% of the patients of the region, approximately 30,000 patients out of the 725,000 that receive ART, are being treated with obsolete or inappropriate ARVs, three percentage points less than in 2010. According to the data for 2012, 3% of the patients in first-line treatment and 5% of the patients in second-line treatment received obsolete regimens. Of these, the most used is d4T, administered to 3% of the patients in first-line treatment (corresponds to 86% of the obsolete ARVs used in first-line treatment). d4T is followed by didanosine, which is administered to 0.4% and 3% of patients in first- and second-line treatment, respectively. A comparison of the information with data from 2010 shows a decrease in the use of these ARVs in Belize, Bolivia, Cuba, Ecuador, Paraguay, Dominican Republic, and Uruguay (Figure 9).

Figure 9

Percentage of patients receiving inappropriate antiretroviral drugs, by line of treatment and country, 2012



Source: WHO survey on antiretroviral use 2013

Note: ^aThe data for Saint Lucia and Saint Vincent and the Grenadines is for 2011.

4.3.6 ARV stock-out episodes

Antiretroviral stock-outs at the dispensing point are a serious public health problem since they result in changes and interruptions in patient treatment (14,15). The efficacy of ART depends on treatment retention since interruptions are associated with drug resistance, opportunistic infections, and higher mortality (16,17).

In 2012, 45% (14/31) of the countries reported at least one stock-out episode¹² (Table 9); the figure had been 54% (14/26) in 2010. Although some improvements are seen from 2010 to 2012, the region still experiences a high frequency of stock-outs that continue to pose a challenge to an adequate response to the HIV epidemic.

In 2012, 45% (14/31) of the countries reported at least one stock-out episode of antiretroviral drugs.

A comparison of countries reporting data for 2010, 2011, and 2012 shows that in 17 countries there was an improvement in the ARV stock-out situation, and a decrease in the percentage of establishments with stock-out episodes (Table 10).

¹² Reported as the number of stock-out episodes in 2012 or number of centers with stock-outs in 2012.

**Table
9**

Countries of Latin America and the Caribbean that reported an ARV stock-out during 2012

Stock-out	Country ^a
Yes	Anguilla, Antigua and Barbuda, Bahamas, Belize, Brazil, Costa Rica, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru, Dominican Republic, Venezuela
No	Argentina, Barbados, Bolivia, British Virgin Islands, Cuba, El Salvador, Grenada, Guyana, Haiti, Honduras, Jamaica, Paraguay, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay .

Source: WHO survey on antiretroviral use, 2013. National reports to WHO on progress toward universal access, 2013.

Note: ^aThere are countries with no official data reported but for which statements by civil society groups suggest ARV supply problems, for example, Chile and Colombia.

**Table
10**

Percentage of establishments with ARV stock-outs reported in 2010, 2011 and 2012, Latin America and the Caribbean, by country and by year, and number of ARV stock-outs in 2012^a

Progress 2010-2012	Country	Percentage of establishments dispensing ART with antiretroviral stock-out episodes ^a			Number of stock-out episodes 2012
		2010	2011	2012	
Improvement	Argentina	5	0	0	0
	Barbados	50	0	0	0
	Belize	0	33	8	1
	Brazil	100	--	7	1
	Costa Rica	100	83	0	1
	Cuba	4	4	0	0
	Dominica	100	0	--	--
	Dominican Republic	84	78	22	--
	Grenada	0	50	0	0
	Guatemala	82	24	25	0
	Guyana	16	0	0	0
	Jamaica	87	100	0	--
	Mexico	0	18	2	1
	Nicaragua	19	0	3	1
	Panama	80	80	73	8
	Saint Vincent and the Grenadines	--	100	2	--
	Trinidad and Tobago	67	0	2	--
No change	Antigua and Barbuda	100	100	100	--
	Ecuador	0	--	0	4
Increased	Peru	0		37	--
No data to evaluate progress	Anguilla	--	--	--	1
	Bahamas	--	--	50	--
	Venezuela	--	--	--	16

Other observations: Of the 34 stock-out episodes reported by 10 countries in 2012, the average duration was 17 days. The most frequently reported causes were delays in the purchasing process (46.3%), delays in the bidding process (31.7%), and failure by the manufacturer or buying agent to deliver (14.6%). In general, stock-outs have multiple causes.

Source: WHO survey on antiretroviral use, 2013. National reports on progress toward universal access 2011, 2012, 2013.

Notes: ^aThe figures are rounded. Countries that reported no stock-out episodes are not shown in the table: Antigua and Barbuda, Bolivia, Chile, El Salvador, Grenada, Haiti, Honduras, Paraguay, Saint Kitts and Nevis, Saint Lucia, Suriname, and Uruguay.

---: Not reported

Information was also requested from civil society groups concerning their perception of the constant supply of ARVs in their respective countries through the PAHO and HCTG survey. Participants from 18 countries answered the following question: "On a scale of 1 to 10, what is your perception of how well the country supplied ARVs to ART patients in the last year?" (1 being the lowest and worst score in the

perception of a constant supply and 10 the highest and best in maintaining a constant supply). Among the countries that reported no ARV stock-outs in 2012, the average score given by civil society was 7.9 (median 8, range 6-10). Of the 7 countries that reported that they did experience stock-outs, the average score given by civil society was 6.1 (median 7, range 1-8) (Table 11).

**Table
11**

Perception by civil society groups of the constant supply of ARV to ART patients, by country, 2012

Country	Perception by civil society groups of the constant supply of ARV Scale from 1 (worst) to 10 (best) ^a
Argentina	9
Barbados	10
Bolivia	6
Colombia	4.5
Costa Rica	8
Chile	4 and 10
Dominican Republic	5
Ecuador	5.5
El Salvador	8
Guatemala	8
Honduras	6
Nicaragua	8
Paraguay	6 (peripheral level) 8 (central level)
Peru	7
Saint Lucia	9
Suriname	6
Uruguay	9
Venezuela	1

Source: PAHO-HCTG civil society survey, 2013.

Note: ^a 1 indicates the lowest and worst score in the perception of a constant supply and 10, the highest and best.

Risk of a stock-out has not been reflected in these statistics. However, stock-out risks require corrective measures, such as an ARV substitution; furthermore, the time between dispensations is shortened (for example, in Ecuador and Honduras) or dispensation is divided (for example in Nicaragua). Threats of a stock-out are an obstacle to ARV treatment retention.

However, regardless of stock-outs, patients under treatment face many obstacles (for example, economic, social, including stigma and discrimination, work-related, and transportation) to receiving their drugs adequately and in a timely manner (18), sometimes facing this situation every month, when they need to go to their health care centers.

In some countries there is also anecdotal information on stock-outs of other strategic supplies for HIV care such as reagents, which are used to determine viral load or CD4, and diagnostic tests. The magnitude and impact of these stock-outs have not yet been determined.

In 2012 in the region, 71% of patients on ART received first-line drugs.

4.4 Results of the HIV Care Continuum

4.4.1 Distribution of patients by line of antiretroviral treatment and rate of change from first to second line

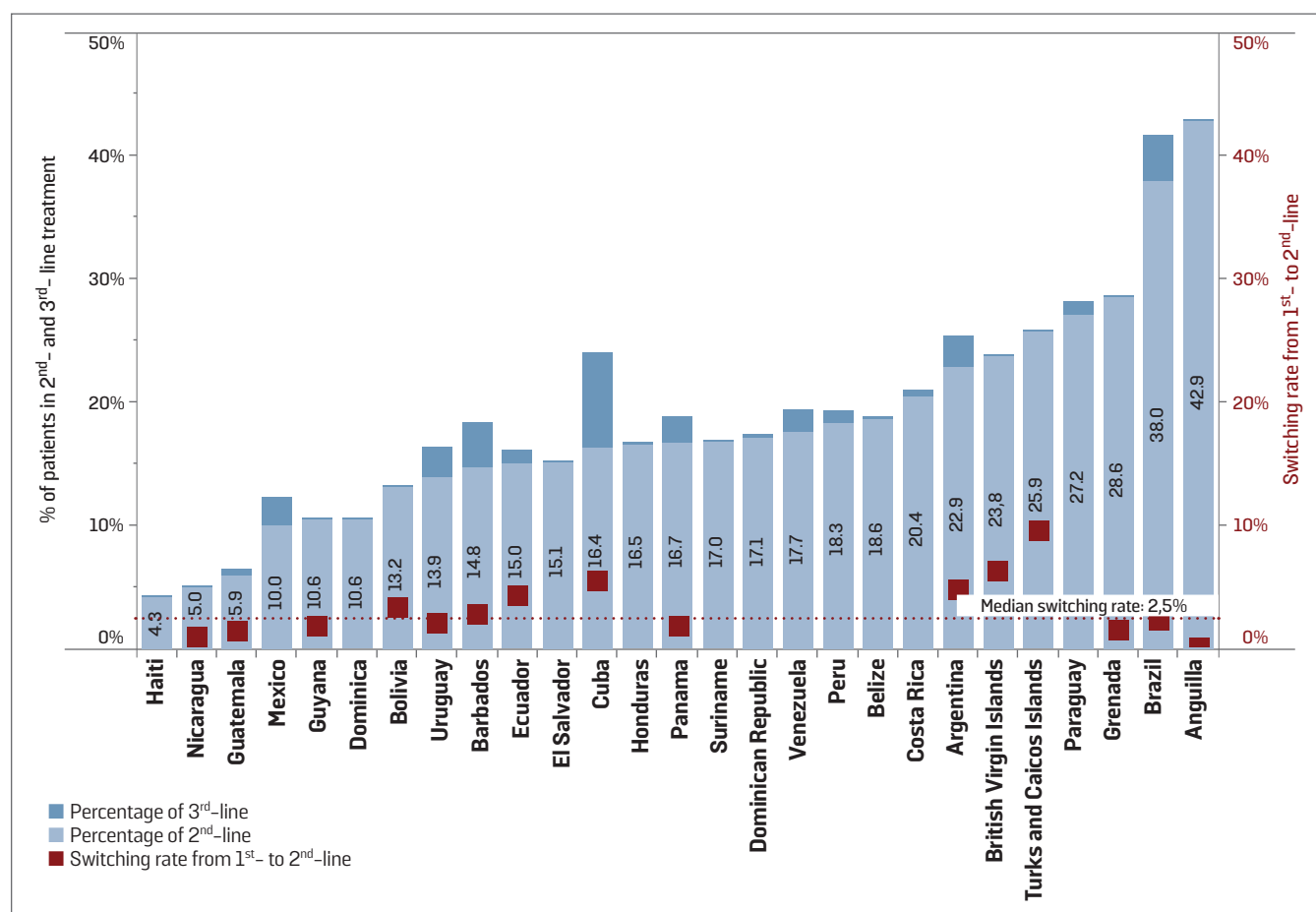
In 2012 in the region, 71% of patients in ART received first-line drugs, similar to the figure in 2010 (73%), but ranging from 57% in Anguilla to 96% in Haiti. Of the countries with data, 18 out of 27 have more than 80% of their patients in first-line treatment. The countries that have more patients (more than 85%) in first-line treatment are, from highest to lowest: Haiti, Nicaragua, Guatemala, Dominica, Guyana, Mexico and Bolivia. The percentage of people in ART in second-line treatment in the region is 27% (it ranges from 4% in Haiti to 43% in Anguilla).¹³ In general, higher percentages of patients in second-line ART are found in countries whose treatment programs are older or with a very small number of patients; in the latter case, a few patients changing regimen can significantly affect the percentages in first- or second-line treatment.

Two point five per cent of patients receive third-line ART; that figure ranges from 0% in Anguilla, Bolivia, Dominica, Grenada, Guyana, Haiti, and Suriname to 8% in Cuba (Figure 10).

¹³ Data from 27 countries in the region.

Figure 10

Percentage of patients in second- and third-line treatment and switching rate from first to second line in selected countries of Latin America and the Caribbean



Source: Country responses to the WHO antiretroviral survey, 2013

Note: ^aNo data for the rate of change from first- to second-line treatment

A switch in treatment from first to second line is defined as any modification of antiretroviral treatment in a patient made as a consequence of failure of the treatment. If the reason for the change is toxicity, it is called substitution. There are data on the switching rate from first to second line from 16 countries in the region for 2012 (see Figure 10). The rate varies from 0% in Anguilla to 9.5% in the Turks and Caicos Islands and the median is 2.5%. The validity of this indicator is limited, given the

difficulties of defining first and second line, for example, in countries that use protease inhibitors in first-line ART, or due to failure to determine the reason for the change (failure should be differentiated from substitution due to toxicity). Furthermore, the switching rate in countries with few patients can fluctuate significantly from one year to the next. On the other hand, very low rates may reflect limited access to virological monitoring tests and delays in switching treatment.

4.4.2 Patient monitoring

Intensity of virological monitoring

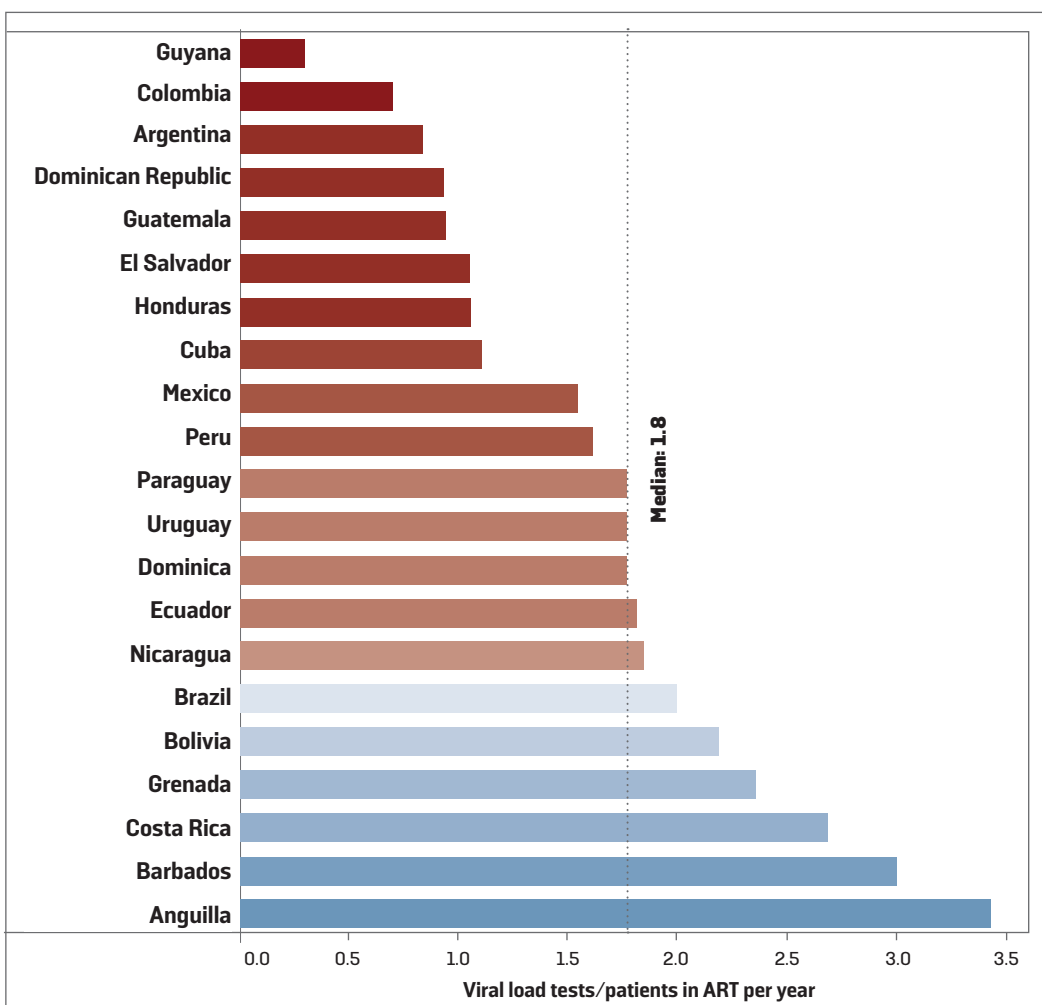
Monitoring ART patients is important for the success of the treatment, for detecting treatment adherence issues, and determining if the regimen needs to be changed due to failure of the treatment. Viral load measurement is regarded as a sensitive and early indicator for diagnosing failure of treatment in comparison with clinical or immunological indicators. WHO recommends viral load measurement as the monitoring method of choice

to diagnose and confirm the failure of antiretroviral treatment. Viral load should be measured shortly after initiating ART (at 6 months) and subsequently every 6 months.

The intensity of virological monitoring of patients in ART is calculated as the ratio of the total number of viral load tests performed annually in a country, divided by the total number of patients under treatment. Although the majority of countries show figures of less than two viral load tests per patient in ART per year (Figure 11), in 2012 the median increased 33% with respect to 2010 (median of 1.2 viral load tests per patient in ART) when comparing data from the 15 countries that reported both years.

Figure 11

Ratio of annual viral load tests per patient in ART, by country, 2012



Source: WHO survey on antiretroviral use, 2013.

4.4.3 Screening tests for HIV and early access to diagnosis and care

The entryway to HIV treatment, care, and prevention is diagnosis of the viral infection. The objective of national HIV programs in performing tests and providing counseling is to identify the greatest number of HIV-infected people as soon as possible after infection and to connect them adequately and opportunely to preventive, care and treatment services to protect their health and well-being, and at the same time to minimize transmission of the virus. It is estimated that 50% of the people with HIV in the region do not know their serological situation (19,20,21), although persistent information gaps are an obstacle to precise knowledge of the progress achieved in diagnosing HIV+ persons.

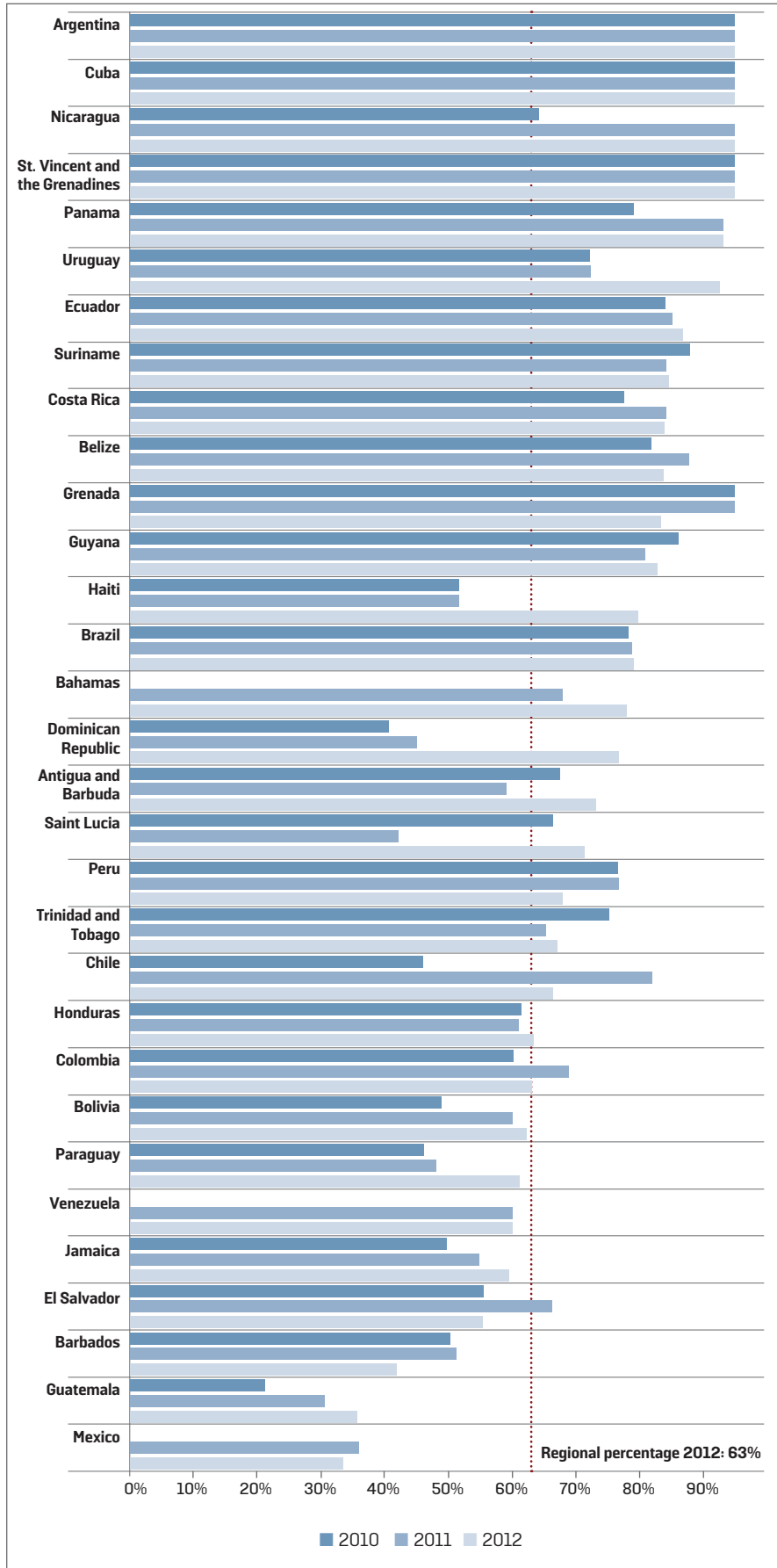
WHO recommends maintaining a combination of testing and counseling strategies to improve access to HIV diagnosis. This combination of strategies includes offering the test to pregnant women, to patients with tuberculosis, and patients with STI in health care centers; testing and voluntary counseling centers; and the expansion of community strategies, such as mobile units, testing and counseling during events accessible to key populations, and special campaigns, among others.

HIV tests among pregnant women represented around 30% of all tests performed in LAC in 2012.

The effort put into performing HIV tests can be measured by the number of people tested per 1000 population per year. The rate in the region was 36 per 1000 population in 2012 (median of the data from 29 countries) or a total of 23 million people, which places Latin America and the Caribbean second only to Sub-Saharan Africa among the regions of countries in the world with medium and low incomes.

Among the different strategies used for performing HIV screening tests in the region, the testing of pregnant women in prenatal care is notable, with 63% coverage in 2012, which accounts for approximately 30% of all tests performed in LAC (Figure 12).

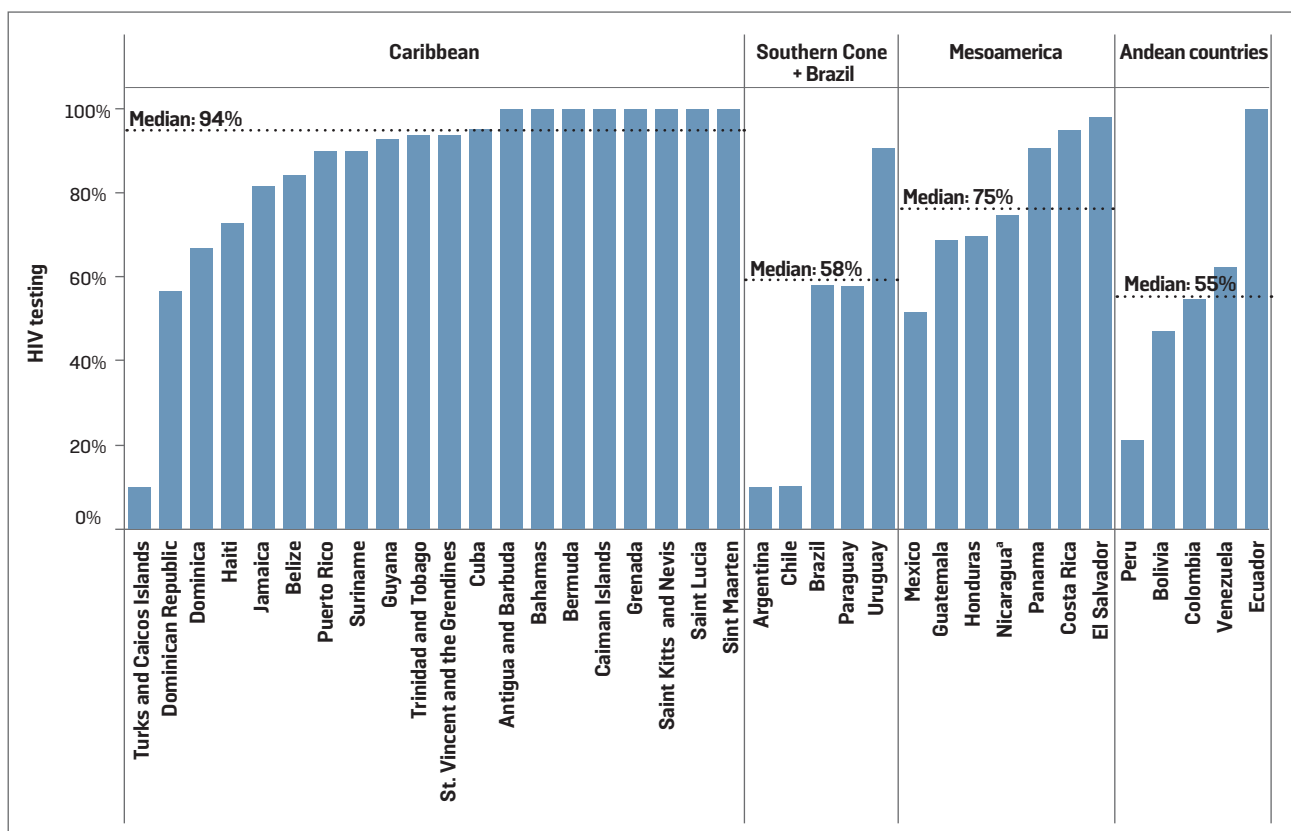
Figura 12
Percentage of pregnant women tested for HIV who know their results, Latin America and the Caribbean, by country, 2010-2012



Source: WHO national reports on progress toward universal access, 2011-2013. United Nations population estimates, 12th revision (Original reference: United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, CD-ROM Edition.) The denominator for Colombia comes from national sources—Colombia Fund for High-Cost Diseases. The denominator for Uruguay for 2012 comes from national sources: Live Birth Electronic Certificate.

Figure 13

HIV test coverage in patients with tuberculosis, Latin America and the Caribbean, by country, 2011



Source: WHO. Global tuberculosis report: 2012. Geneva: World Health Organization, 2012.

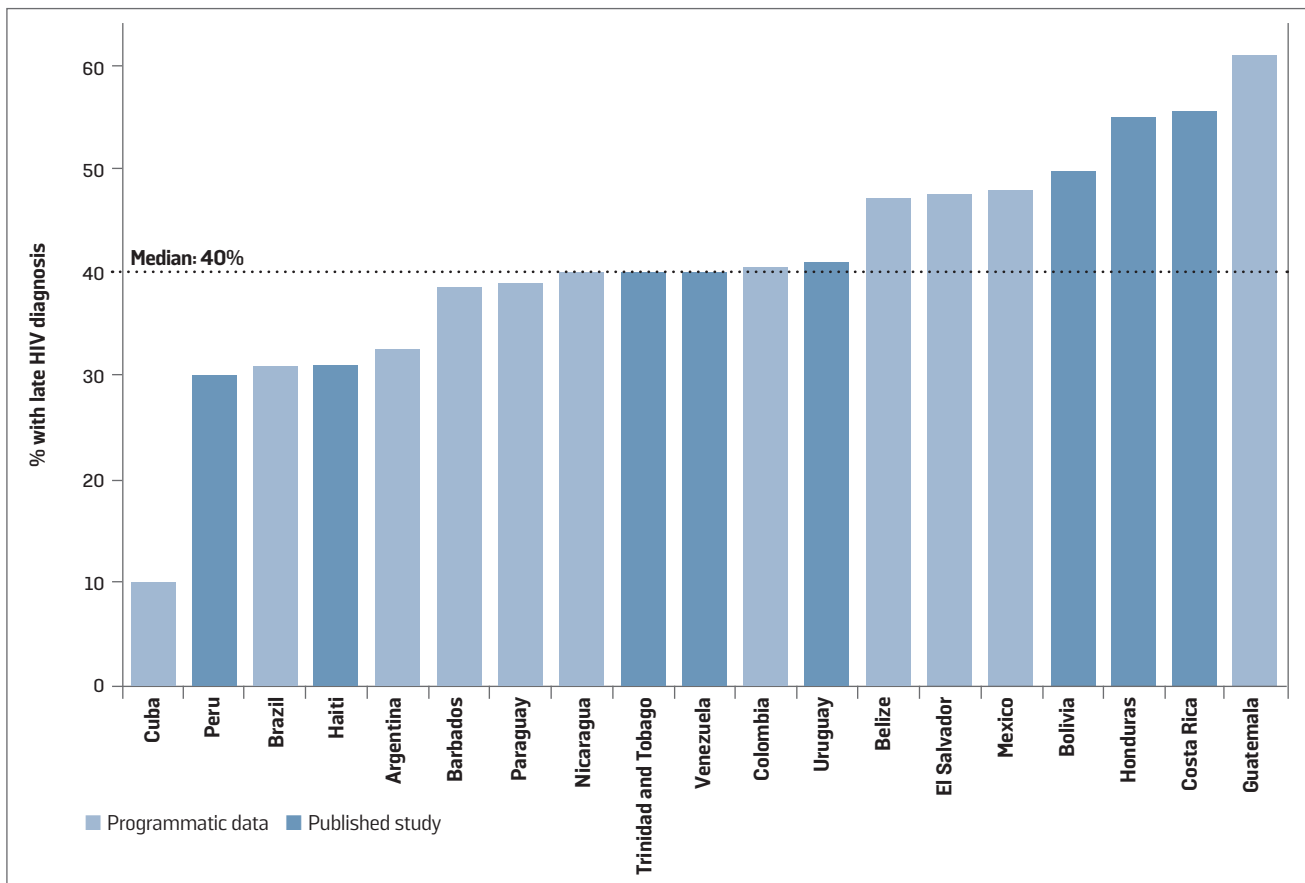
^aNicaragua data were updated in September 2013 with information provided by the National HIV Program to the Global Fund.

Furthermore, provider-initiated HIV testing strategies targeting patients with tuberculosis have high coverage figures in some countries (Figure 13), but figures for Latin America and the Caribbean as a whole continue to be low and progress is slow: from 39% in 2006 to 52% in 2011. However, this indicator has stagnated during the past two years (2010 and 2011) (Figure 21).

Progress is slow and the region faces numerous obstacles to timely HIV diagnosis; this is shown in the data on the immunological stage at the time of access to care. In half of the countries, 40% or more of patients present an advanced stage of immunological depletion (<200 CD4 cells/mm³) at their first CD4 determination (Figure 14).

Figure 14

Percentage of patients with late HIV diagnosis in Latin America and the Caribbean, 2008-2013



Source: UNAIDS. National reports on advances in the world response to AIDS 2013, except for the following, whose bibliographic reference appears in parenthesis: Bolivia (Protto JP, 2008) (22); Costa Rica (Vargas C and Boza R, 2012) (23); Haiti (Noel et al, 2013) (24); Honduras (Crabtree-Ramírez, 2011; HIV/AIDS/STI/ Dept, Honduras, 2010) (25); Peru (Crabtree-Ramírez, 2011) (25); Trinidad and Tobago (Soyer-Labastide S, 2010) (26); Uruguay (Cabrera S, 2011) (27); Venezuela (Vicentelli R, 2008) (28). Note: Late diagnosis for the most part refers to patients with baseline CD4 <200 cells/mm³. However, Bolivian and Honduran reports use clinical symptoms at diagnosis or both criteria (CD4 and clinical symptoms at diagnosis).

For many countries the main obstacle is the persistence of HIV diagnostic algorithms that depend exclusively on confirmation by Western Blot (Table 12) or other complex techniques with many intermediate tests. Recently, some countries have made progress in the use of more efficient and cost-effective diagnostic algorithms that reduce the multiplicity of tests and improve access to point-of-care diagnosis, beginning with rapid tests, where appropriate; for example, Argentina, Bolivia, Costa Rica, Honduras, and Dominican Republic.

Obstacles also persist to providing HIV screening tests to key populations under culturally appropriate conditions and with respect for human rights. The traditional model of counseling and testing predominates in the region, but it has limitations in serving the needs of the most exposed and most vulnerable populations. Few countries have the information and analyses to guide strategic decisions and the management of HIV diagnostic programs. For example, it is important to know how to allocate HIV testing by strategy (in health care centers—initiated by the supplier, voluntary testing and counseling—and outside of health care centers) and the percentage of positive tests for each strategy.

4.4.4 Coverage and retention in treatment

The number of patients in antiretroviral treatment in Latin America and the Caribbean continues to increase. In December 2012 there were approximately 725,000 patients in ART, of which approximately 26,900 were children under 15 years of age. That coverage is the highest of all the regions in the world among middle- and low-income countries. In fact, of the patients in ART, 688,000 adults and 26,700 children under 15 years of age were from middle- and low-income countries (total of 715,000). In that same year, 75% (66%–85%) of all patients who met the criteria for treatment and 67% (50%–82%) of children under 15 years of age in middle- and low-income countries received ART. It is worth mentioning the figure for pediatric ART coverage of 45% in the Caribbean. ART coverage increased 2 percentage points in 2012 with respect to 2011 (Figure 15).

Table 12

Countries that use Western Blot to confirm HIV infection, 2013

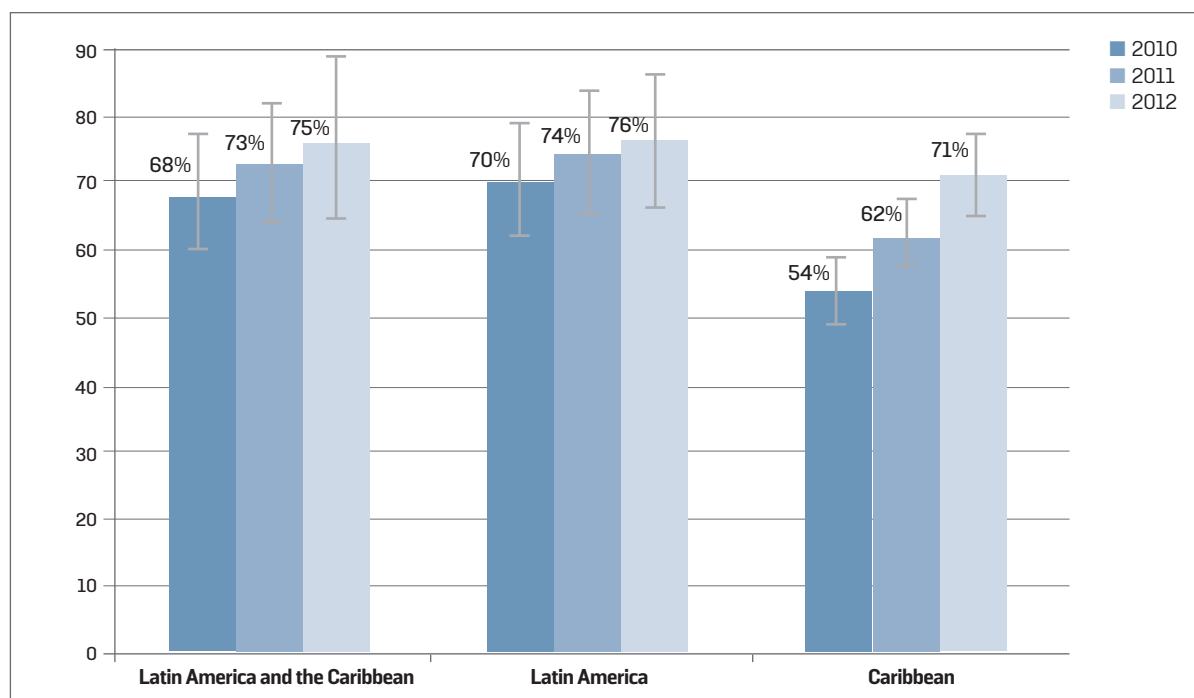
Confirm exclusively by Western Blot	Do not confirm exclusively by Western Blot
Latin America: Chile, Colombia, Ecuador, Mexico, Paraguay, Peru ^a , Uruguay, and Venezuela	Latin America: Argentina, Bolivia (in transition), Brazil, Costa Rica (in transition), El Salvador, Guatemala (in transition), Honduras, Nicaragua, Panama.
Caribbean: Anguilla, Bonaire, Cayman Islands, Jamaica, Saba, Statia, St. Eustatius, St. Martin (French and Dutch), Turks and Caicos Islands	Caribbean: Antigua and Barbuda, Barbados, Bahamas, Belize, British Virgin Islands, Cuba, Dominica, Grenada, Guyana, Haiti, Montserrat, St. Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago

Source: PAHO document. 2013

Note: ^aConfirmation by immunofluorescence, not by Western Blot.

Figure 15

Antiretroviral treatment coverage (%) in Latin America and the Caribbean, by year, 2010 to 2012



Source: UNAIDS. National reports on advances in the world response to AIDS 2011–13 and UNAIDS estimates on the need for treatment based on a CD4 threshold of 350 cells/mm³.

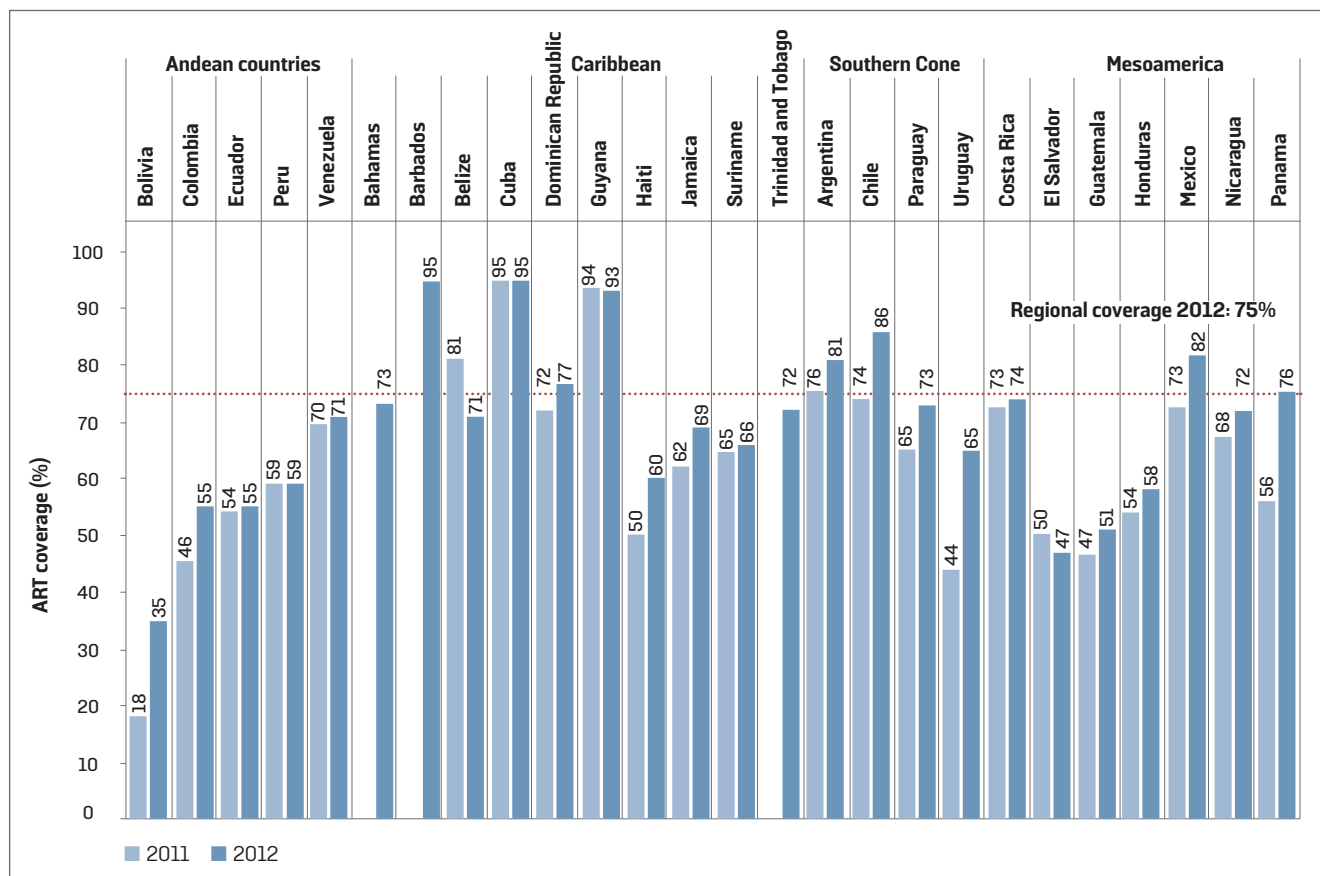
Vertical bars reflect the uncertainty intervals.

The figures for ARV treatment coverage by subregion are 76% in Latin America and 71% in the Caribbean. Treatment coverage in LAC by sex is 77% for men and 80% for women (based on data for 700,000 patients). The countries that achieved universal access to treatment in 2012 were Argentina, Barbados, Brazil, Chile, Cuba, Guyana, and Mexico (Figure 16 and Annex 4). Eleven more countries are close to achieving universal access (Bahamas, Belize, Costa Rica, Jamaica, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Trinidad and Tobago and Venezuela).

Retention in treatment of patients who begin ART is one of the most important elements for the success of a treatment program. Despite advances in antiretroviral treatment coverage, many patients begin their regimen with a very low CD4 count, and therefore mortality in the 6 months following the initiation of treatment of treatment is significant and is reflected in the figures for retention in treatment (29). Retention at 12 months after initiation of treatment varies from 53% to 97% between the countries of the region in 2012. Although there are differences between countries, clear retention pattern differences are not observed between men and women after 12 months of ART. Table 13 shows a classification of countries according to the percentage of retention at 12 months after initiation of treatment. There are two categories: sufficient retention (>85%), or low retention (≤85%) (30).

Figure 16

Antiretroviral treatment coverage (%) in Latin America and the Caribbean, by country, 2011 and 2012



Source: UNAIDS. National reports on advances in the world response to AIDS 2012-2013 and UNAIDS estimates on the need for treatment based on a CD4 threshold of 350 cells/mm³.

Note: The need for coverage was calculated on the basis of a CD4 threshold of 350, following the WHO 2010 Antiretroviral Treatment Guidelines.

**Table
13**

Retention in antiretroviral treatment (%) at 12 months after initiation, Latin America and the Caribbean, by country and by year, 2009 to 2012

Retention Category ^a	Country	Retention in antiretroviral treatment (%) at 12 months after initiation					
		Year					
		2009	2010	2011	2012		
					Both sexes	Men	Women
Sufficient retention > 85%	Anguilla	86	N/A	N/A	N/A	N/A	N/A
	Antigua and Barbuda	78	85	86	92	88	99
	Belize	76	76	89	N/A	N/A	N/A
	Chile	94	94	94	97	N/A	N/A
	Costa Rica	94	97	N/A	N/A	N/A	N/A
	Cuba	94	94	93	95	94	99
	Dominica	100	N/A	88	N/A	N/A	N/A
	El Salvador	90	75	83	87	N/A	N/A
	Guatemala	83	88	87	86	85	87
	Honduras	79	76	84	88	84	87
	Mexico	88	88	88	92	93	89
	Paraguay	85	82	81	87	N/A	N/A
	Peru	86	88	88	N/A	N/A	N/A
	Saint Kitts and Nevis	100	N/A	100	N/A	N/A	N/A
	Trinidad and Tobago	86	93	83	92	92	91
	Venezuela	84	N/A	95	94	N/A	N/A
Low retention ≤ 85%	Argentina	N/A	N/A	N/A	N/A	N/A	N/A
	Bahamas	91	N/A	71	53	56	49
	Barbados	89	90	95	83	75	89
	Bolivia	79	79	60	67	67	67
	Brazil	99	89	93	80	82	77
	Colombia	N/A	N/A	N/A	53	54	51
	Dominican Republic	83	81	82	N/A	N/A	N/A
	Ecuador	95	83	95	85	85	84
	Grenada	60	100	52	N/A	N/A	N/A
	Guyana	72	81	80	81	81	81
	Haiti	N/A	61	78	75	74	76
	Jamaica	92	86	76	74	74	74
	Nicaragua	67	70	71	74	75	71
	Panama	77	77	N/A	N/A	N/A	N/A
	St. Vincent and the Grenadines	86	N/A	70	75	68	85
	St. Lucia	100	N/A	77	81	91	70
	Suriname	62	68	66	67	64	74
	Uruguay	87	86	65	72	73	70

Source: UNAIDS. National reports on advances in the world response to AIDS 2010-13.

Notes: ^aThe retention classification is for the latest year with available information. In 2011 Uruguay changed the method of calculation for this indicator.

N/A: Not available

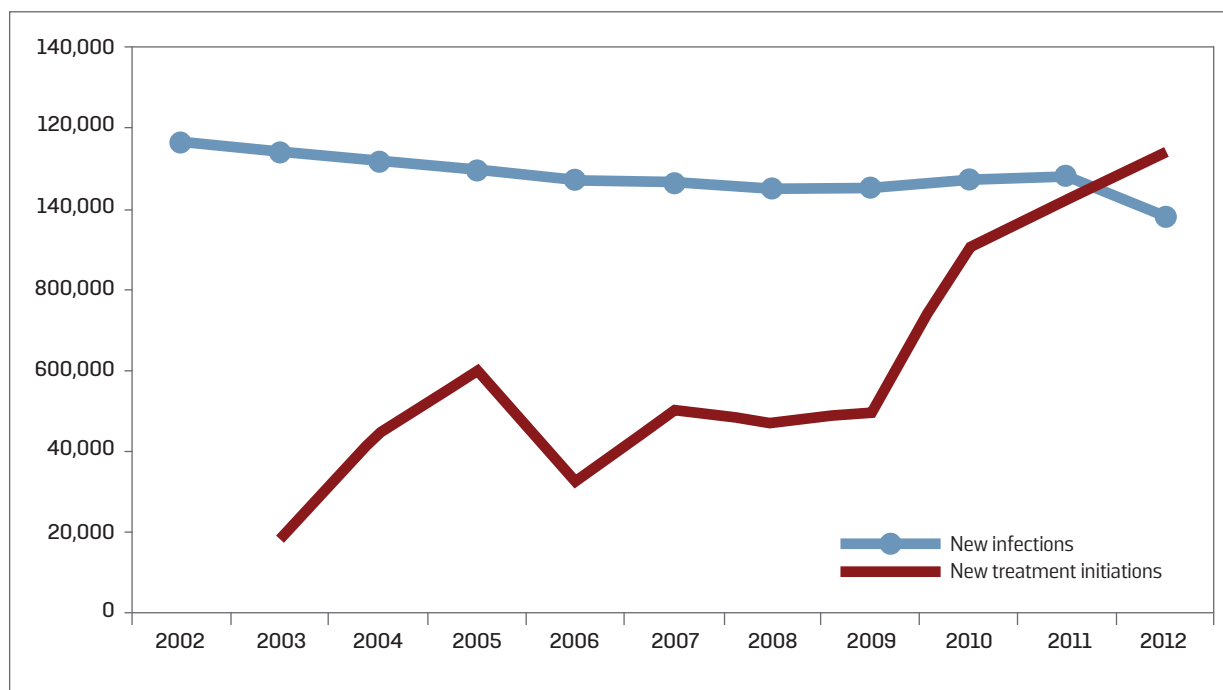
4.4.5 Measuring antiretroviral treatment program effectiveness: the HIV treatment cascade

The expansion of HIV combined prevention to include ART can ultimately achieve an HIV-free generation. One way to measure progress towards this goal is with the so-called program inflection point or tipping point, calculated as the ratio of the estimated number of new infections in a year divided by the number of people who begin antiretroviral treatment in that year. A ratio of less than 1 indicates a broad expansion of ART and a reduction in infectiousness. The regional tipping point,

based on data from 26 countries, was reached in 2011; in 2012 it was below 1 (ratio of 0.9). However, there are still countries that need to strengthen their preventive response, including expanding diagnosis and linking it to HIV-positive patient care (Figure 17 and Figure 18).

Figure 17

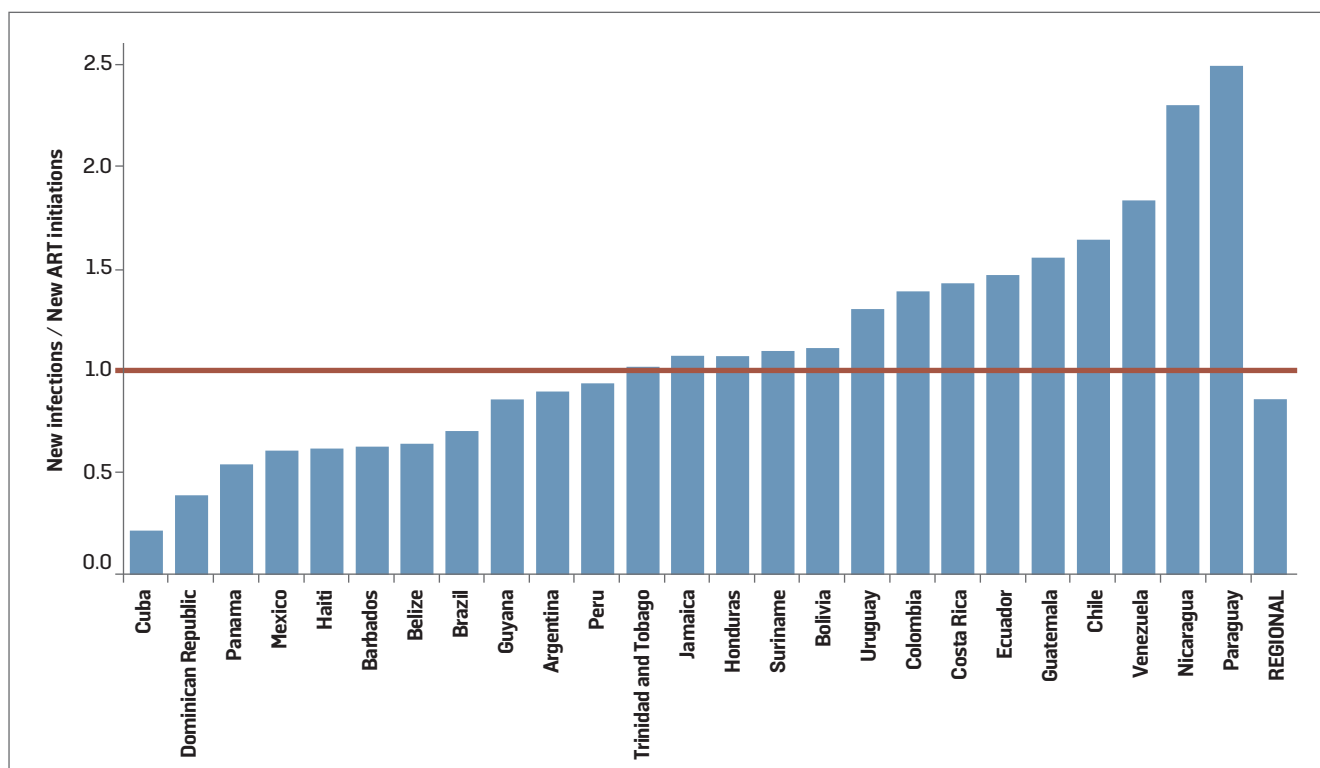
Tipping point in HIV response and antiretroviral treatment in Latin America and the Caribbean, by year, 2002 to 2012



Source: Data on new patients in ART; WHO. National reports on progress toward universal access, 2005-2012. New infection data: UNAIDS. Estimates of new infections. Geneva, 2013.

Figure 18

Program tipping point in the HIV prevention response: ratio of new HIV infections in patients who begin ART, Latin America and the Caribbean, by country, 2012



Source: Patients who begin ART from National reports on progress toward universal access 2013 (WHO). New infections, UNAIDS. Estimates of new infections. Geneva, 2013.

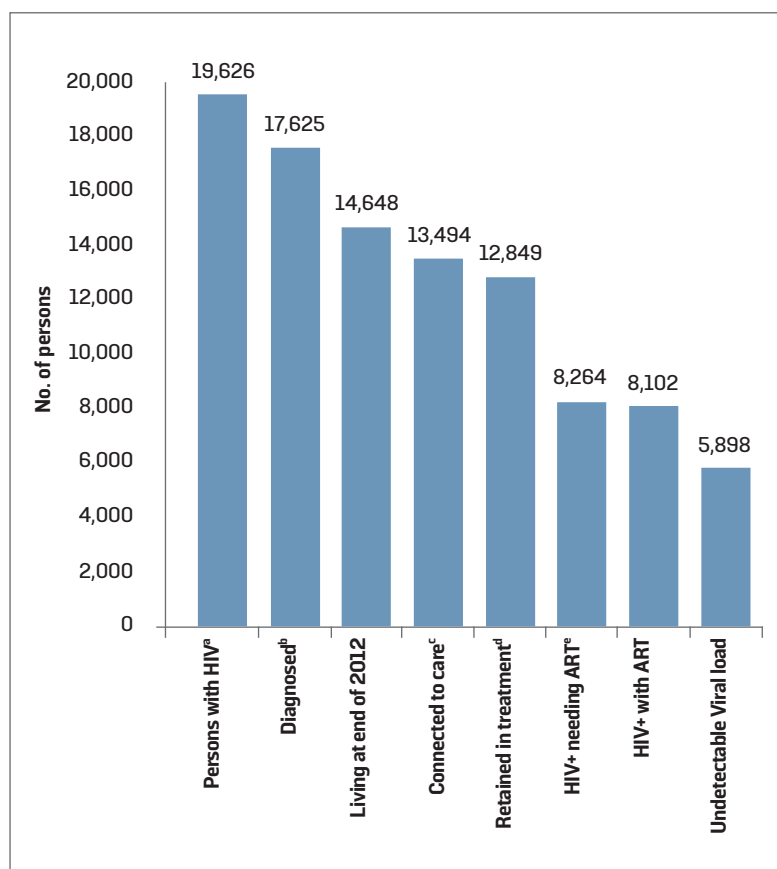
Measuring the HIV care continuum

Analyzing sentinel events to evaluate the HIV care continuum helps antiretroviral treatment programs monitor their results. To that end, in the international sphere, a working method and indicators related to the care continuum have been established to determine the number of patients who receive each health care service and treatment with the result measured by viral load reduction (31). In November 2012, the method and its indicators were discussed and accepted by the countries as an added value in managing their programs;

furthermore, they committed to moving forward on monitoring. The countries of the region have now begun to move forward on these analyses by creating national HIV treatment cascades. At this time, few countries have managed to construct the entire treatment cascade; among them, Cuba's analysis stands out, based entirely on program data and monitoring (Figure 19). Another example is Nicaragua, which combines estimated figures based on epidemic models with program data (Figure 20).

Figure 19

The HIV treatment cascade in Cuba, 2013

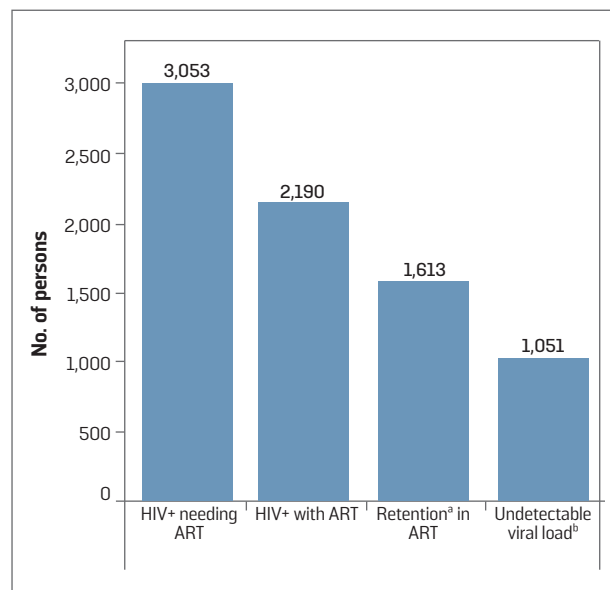


Source: Ministry of Public Health of Cuba. Computerized HIV/AIDS Registry, 2013.
 Notes: ^aNumber of people with HIV: estimated as the difference between all those diagnosed and the percentage of undiagnosed relative to the number of late diagnoses, which has ranged between 10% and 15% annually.
^bDiagnosed: Everyone diagnosed between 1986 and 2012.
^cConnected to care: HIV-positive persons who receive care at any level of the health system.
^dAdhered to treatment: HIV-positive persons who attended at least one monitoring consultation during the year.
^eNeed ART: HIV-positive persons who meet the criterion for 350 cells/mm³

If a country does not have all the information needed, it can complete the HIV treatment cascade by combining the estimated figures for the number of people with HIV (based on EPP/Spectrum models) and live patients diagnosed with HIV (based on monitoring data for HIV cases, updated with the vital state) and patients who are under care (from program data). National programs

Figure 20

Example of construction of the HIV treatment cascade in Nicaragua, 2012



Source: For persons who need ART, UNAIDS. Estimates of the need for treatment. Geneva, 2013; for patients in ART and retention in ART, Nicaragua report on progress toward universal access 2013 (WHO); for patients with undetectable viral load, WHO survey on antiretroviral use, 2013.
 Notes: ^aThe Retention column is based on retention figures at 12 months, which means that the number of people can be higher than the number that appears here.
^bViral load was measured in 1,951 patients, of whom it was undetectable in 1,051

should prioritize this type of strategic information for managing their programs. To date, only seven countries have information on the percentage of patients in ART with undetectable viral load (according to national parameters).

4.4.6 TB/HIV co-infection

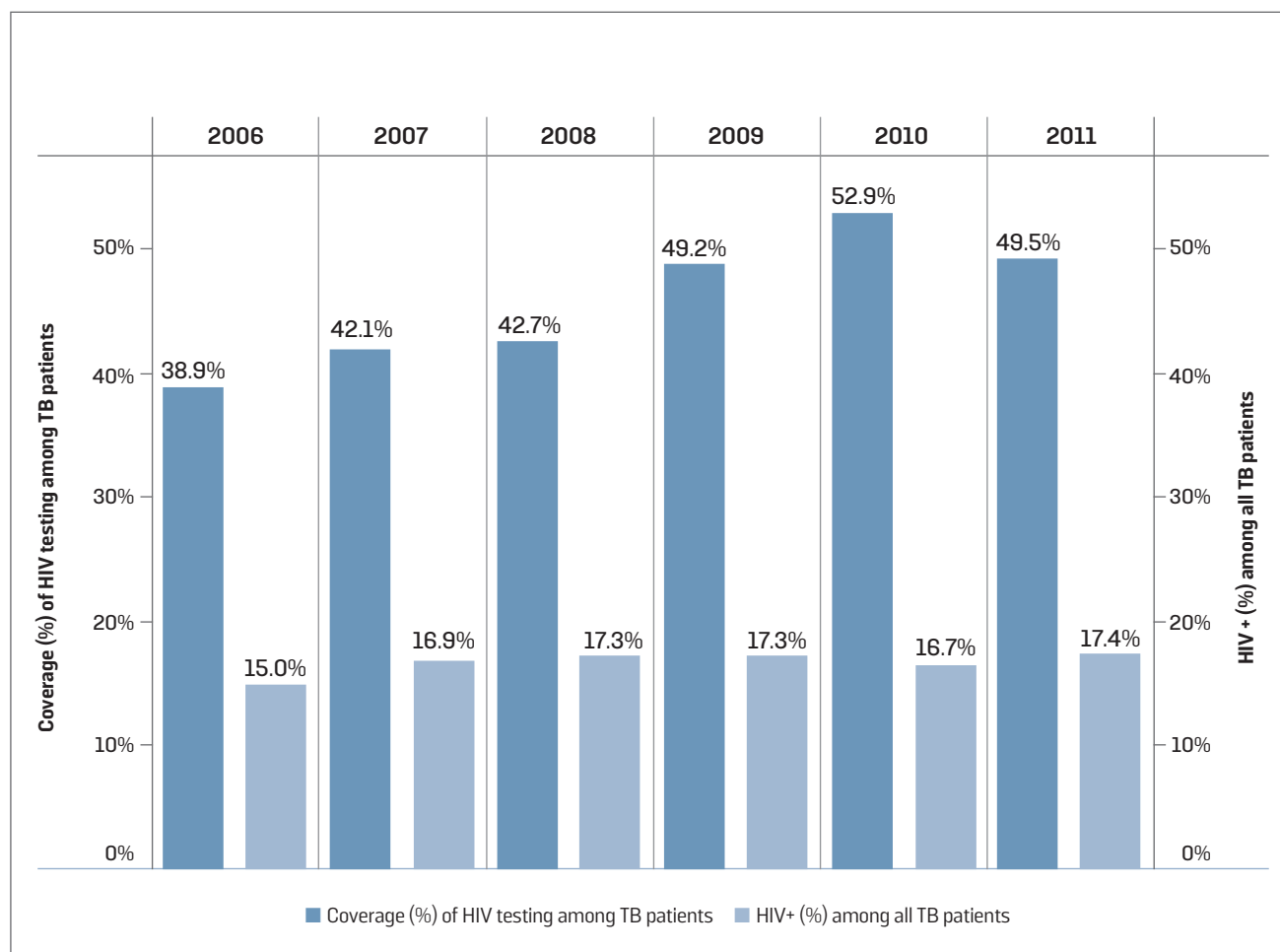
According to the latest reported data, progress in collaboration between TB and HIV programs lags behind. Out of the total number of tuberculosis cases reported in the region, the number of patients tested for HIV increased from 39% in 2006 to 52% in 2010 and did not change between 2010 and 2011. That means that, in 2011, approximately 105,700 tuberculosis patients did not receive an HIV screening test (48% of the new

tuberculosis cases reported); as a result, it is estimated that 18,400 cases of concomitant tuberculosis and HIV were not diagnosed (Figure 21).

Table 14 shows countries by percentage of tuberculosis patients screened for HIV and the percentage of positive tests for 2011.

Figure 21

Regional coverage of the HIV test in tuberculosis patients in Latin America and the Caribbean and percentage of positive tests, by year, 2006 to 2011



Source: World Health Organization (WHO). Global Tuberculosis Control 2012. Geneva: WHO; 2012

**Table
14**
HIV test coverage in tuberculosis patients and percentage of positive tests, Latin America and the Caribbean, by country, 2011

Subregion	Country	Tuberculosis patients tested for HIV (%)	Tuberculosis patients with positive HIV tests (%)
Caribbean	Antigua and Barbuda	100.0	62.5
	Bahamas	100.0	28.6
	Bermuda	100.0	0.0
	Cayman Islands	100.0	0.0
	Grenada	100.0	0.0
	Saint Kitts and Nevis	100.0	0.0
	Saint Lucia	100.0	14.3
	Sint Maarten	100.0	0.0
	Cuba	95.0	8.8
	St. Vincent and the Grenadines	94.1	31.3
	Trinidad and Tobago	94.0	33.2
	Guyana	93.0	23.4
	Suriname	90.1	32.2
	Puerto Rico	90.0	20.0
	Belize	84.2	37.5
	Jamaica	81.5	17.0
	Haiti	72.8	19.4
	Dominica	66.7	0.0
Dominican Republic	56.8	25.5	
Turks and Caicos Islands	10.0	0.0	
Southern Cone + Brazil	Uruguay	90.7	14.8
	Paraguay	59.6	11.4
	Brazil	58.3	19.5
	Chile	10.2	46.3
	Argentina	9.9	53.1
Mesoamerica	El Salvador	98.0	10.3
	Costa Rica	95.0	9.4
	Panamá	90.5	16.0
	Nicaragua ^a	75.2	2.3
	Honduras	69.6	11.3
	Guatemala	68.8	12.2
	Mexico	51.6	18.7
Andean countries	Ecuador	100.0	10.8
	Venezuela	62.3	12.9
	Colombia	54.9	19.6
	Bolivia	47.1	3.4
	Peru	21.5	13.6

Source: World Health Organization (WHO). Global Tuberculosis Report 2012. Geneva: 2012.

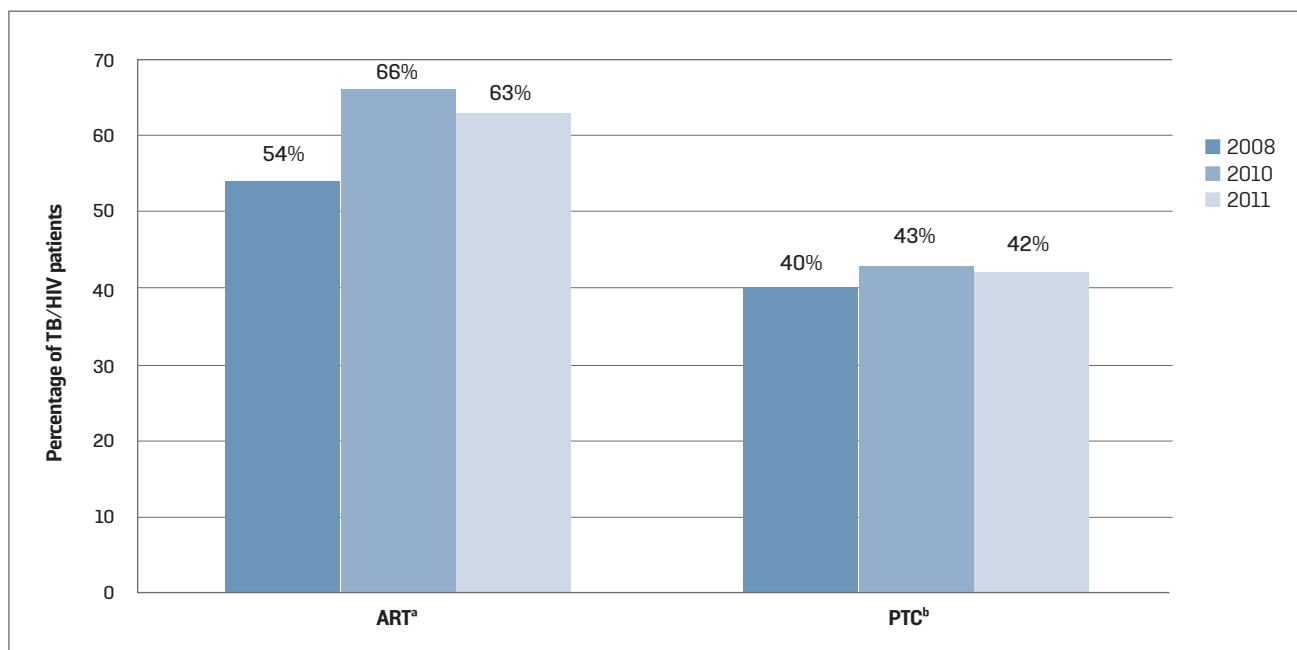
^aData from Nicaragua updated in September 2013 with information submitted by the National HIV Program to the Global Fund.

The antiretroviral treatment rate for patients with TB/HIV co-infection remains, on average, at about 61% in countries that reported data for 2008, 2010, and 2011. That means that, in 2011, approximately 7,700 (37%) cases of reported TB/HIV co-infection did not receive ART. The number of countries that reported on providing ART to patients with TB/HIV co-infection increased from 18 in 2006 to 25 in 2011 (of a total of 36 countries). Furthermore, the rate of providing cotrimoxazole preventive treatment (CPT) has improved, although not all countries report it. In the countries that do, 42% of infected persons received CPT, which means that 12,166 (58%) of TB/HIV patients did not receive this preventive treatment in 2011 and that figures have remained stable in recent years (Figure 22).

Reducing the burden of disease caused by TB in HIV-positive persons involves three approaches, known as the Three I's for TB/HIV, administered by national HIV/AIDS programs: intensifying TB case-finding among people living with HIV, offering isoniazid preventive therapy (IPT) to people who do not have active TB, and controlling the spread of TB infection in health-care settings. Although some of these approaches are in use, they are not always reported. For example, in 2011, only six countries reported ruling out active tuberculosis in people with HIV (2,653 persons) and only three reported the administration of IPT. Moreover, 17 countries reported the number of health workers who contracted tuberculosis during 2011, a total of 1,470 cases, indicating deficiencies in infection control.

Figure 22

Coverage providing ART and CPT to TB/HIV patients, Latin America and the Caribbean, 2008, 2010, and 2011



Source: World Health Organization (WHO). Global Tuberculosis Report 2012. Geneva: 2012.

Notes:

^aInformation from 19 countries.

^bInformation from 11 countries.

PTC: preventive treatment with cotrimoxazole; ART: antiretroviral treatment.

4.5 Community Participation

Since the early years of the AIDS epidemic, civil¹⁴ society has played a key role, advocating that governments meet their commitments to respond to the epidemic, contributing to the development of innovative approaches to services and improving access to the services, and empowering the groups most affected by the epidemic. At the meeting on Treatment 2.0 in Latin America held in Buenos Aires in 2012, civil society defined its function in three fundamental areas: (a) social protest; (b) oversight, and (c) voluntary peer counseling, especially with regard to treatment adherence and reaching out to the more exposed communities. It was determined that those functions should be placed within a cooperative framework that includes coordination and financial sustainability.

Community participation in the provision of HIV diagnosis and treatment services is irregular and very dependant on external funding.

In 2013, PAHO and HTCG prepared a survey of civil society organizations in countries of Latin America and the Caribbean to investigate their participation in ARV counseling services, screening tests, and treatment. Responses from organizations in 18 countries of the region (Annex 3) were received. The results of the survey show that community participation in HIV diagnosis and treatment services is irregular (not universal in the countries) and financially very vulnerable (Table 15).

¹⁴ Community response to the HIV epidemic includes many actions at the local, national and regional levels. Some responses were initiated from within the community, while others were introduced and financially supported by a variety of external groups, particularly the Global Fund. Responses have been informal, driven by need, or more formally organized with a written mission statement, human resources, etc. Both formal and informal community-based organizations fall into the general category of civil society.

**Table
15**

Civil society participation in testing and counseling centers, and in health care and treatment centers, Latin America and the Caribbean, 2013

Civil society participation in HIV testing and counseling centers	Number/total responding (%)
Countries with participation in HIV testing and counseling centers	14 / 18 países (78)
National coverage of community participation in HIV testing and counseling centers	
<30% of centers	7/12 (58)
30%–60% of centers	5/12 (42)
Financing of community participation in HIV testing and counseling centers	
-By donors	10 /14 (71)
-No financing: volunteers	7/ 14 (50)
-National budget	6/14 (43)
Existence of regulations or national directives	4/11 (36)
Civil society participation in ART centers	Number/total responding (%)
Countries with participation in ART centers (such as peer support of people living with HIV)	14/18 (78)
National coverage of community participation in ART centers	
<30% of centers	5/13 (38)
30%–60% of centers	7/13 (54)
>60% of centers	1/13 (8)
Financing of community participation in ART centers	
- By donors	12/14 (86)
- No financing: volunteers	8/14 (57)
- National budget	5/14 (36)
Existence of regulations or national directives	7/14 (50)

Source: HTCG and PAHO survey of national civil society networks, 2013.

This is the second report on antiretroviral treatment in Latin America and the Caribbean. It presents a public health analysis as part of the commitment to expand and sustain antiretroviral treatment. This second report is an important instrument for promoting dialog between key national partners and for supporting joint progress toward fulfilling the contracted commitments to the goals of zero new infections and zero deaths from HIV.

Salient aspects of the report

- This second public health analysis report strengthens its position as a regional public benefit; it welcomes the participation of partners such as the Horizontal Technical Cooperation Group and civil society networks.
- Progress in Latin America and the Caribbean in ARV treatment expansion and sustainability, is documented, with a look at innovation (Table 16). Four countries in Latin America and 3 in the Caribbean have achieved universal access to treatment, and 9 countries, 4 in Latin America and 5 in the Caribbean, are close to achieving it.
- There is a greater political commitment and a favorable trend toward increasing the investment of national funds in ARV and reducing dependency on international financing.
- Hard effort and systematic work on critical matters have driven regional results, such as the following:
 - Regional and subregional meetings on priority matters, such as the Regional Conference on Stock-outs, in the Dominican Republic, 2011; the Consensus Meeting on HIV Testing and Counseling in South America; the Meeting on HIV Testing and Counseling in Central America and the Caribbean, in Panama; the Meeting on Treatment 2.0 in South America, in Buenos Aires; the Regional Conference on Strategic Information in Latin America and the Caribbean, in Panama, all in 2012; and the meeting in Suriname on expansion and sustainability of the HIV response in the Caribbean, in 2013.
 - Joint missions to seven countries on Treatment 2.0, with five more planned for the end of 2013.
 - In-person and virtual dialogs with and between civil society groups, for example, the dialog held during the International AIDS Conference in Washington DC in 2012 and national dialogs held by civil society groups (for example, in Bolivia and Guatemala).
- In these two years, public health prospects for antiretroviral treatment have improved.
- The new WHO guidelines are beginning to be applied in Latin America and the Caribbean. Several countries had already begun to interpret and apply the recommendations earlier. The new guidelines translate scientific evidence into policies and practical recommendations for ART.
- The HCTG survey on the cost of ARVs transparently provides strategic information to make ARV purchases more efficient.
- Several countries have already established standards that include community participation in the delivery of health care and treatment services. However, where these services exist, coverage is limited and financing comes mostly from external funds (mainly the Global Fund for AIDS, Tuberculosis and Malaria). As a result, the efficacy and sustainability of this work are at risk.

Limitations of the report

Limitations arise mainly because of the quality of the data or indicators. Problems persist with the definition of the indicators (for example, the definition of second-line treatment and change rate from first to second line) or, in some cases, the limited representativeness of the data. When an item cannot be measured directly, a substitute proxy indicator has been used, for example, the percentage of late diagnoses or the virological monitoring ratio. Despite these limitations, regional monitoring of these key points is useful to improve the quality of information as the response progresses. Other limitations arise from the lack of information on certain relevant areas, for example, the lack of data on service access and coverage for key populations (ART coverage for MSM, transgender females or HIV+ sex workers with criteria for treatment).

Where is HIV care and treatment in the region headed?

The region has made major advances in the expansion of ARV treatment and is close to closing the gaps in universal coverage. The question remains, however, as to whether the region is taking full advantage of the benefits that ARV treatment offers. Specifically, why is there not a greater impact on reducing new infections? And, can we decrease HIV mortality even further?

To end the HIV epidemic in LAC, certain challenges in the expansion of the treatment still need to be addressed. The first challenge, and most pressing, is earlier access to HIV diagnosis and timely care. To this end, a greater effort is required to expand HIV testing and counseling, and appropriate strategies must be used to reach the different populations. Several areas need work: simplifying diagnosis, bringing the test to the population, standardizing the HIV test, and effective linkage to care.

The second challenge is to achieve quality care that maximizes retention in ART and reduces the viral load to undetectable levels in all patients. Bringing the services to the population, community participation, virological monitoring, and the use of effective ARV in fixed doses and with minimum toxic effects are the key elements that should be addressed to achieve quality care. By addressing these gaps and expanding ART, the region can envisage reaching the goals of zero new infections and zero deaths from HIV.

**Table
16**

Summary of results of the 2013 regional report on treatment compared with 2010

Framework of analysis in regional report, 2013	Comparative results for 2010 and 2012 data
Percentage of spending on antiretroviral treatment financed by external funds	Progress toward less dependency on external financing. Ten countries, eight of them in the Caribbean, still with a heavy burden of disease—such as Haiti and the Dominican Republic—are highly dependent on external financing for ART.
Cost of priority ARV regimens	High variability in regimen cost among the countries.
Compliance with WHO recommendations (for first- and second-line treatment)	Progress in compliance with the WHO-recommended treatment regimens. 78% of adults in first-line treatment and 39% in second-line treatment are in WHO-recommended regimens.
Situation of national treatment guidelines: year of last updating and criteria for initiation of ART	Countries have their guideline under review for better alignment with WHO directives.
Number of first- and second-line ARV regimens	Still many different regimens in use. Ten countries have reduced the number of regimens but there is little progress from 2010 to 2012. A small number of regimens gather most patients.
Percentage of patients who receive obsolete or inappropriate drugs	Reduction in the number and percentage of patients in inappropriate/obsolete ARV treatment.
Stock-outs in the ARV supply	Decrease in the percentage of establishments with supply stock-outs although they persist as a key problem in LAC.
ART coverage	Increase from 2010 to 2012 in the number of people under ART and ARV coverage. Seven countries achieved universal coverage with ART (Argentina, Barbados, Brazil, Chile, Cuba, Dominican Republic, Guyana and Mexico) and 11 are close: Bahamas, Belize, Costa Rica, Jamaica, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago and Venezuela.
Retention at 12 months	Same.
Percentage of patients in first-, second- and third-line treatment	Same.
Intensity of virological monitoring: annual viral load tests per patient in ART per year	Improvement, although still suboptimal.
Number of annual HIV screening tests per 1000 population, in persons over 15 years of age	Second-ranked region in medium- and low-income countries with more persons (>15 years) receiving the HIV screening test in 2012. However, more HIV testing and counseling is critical to take advantage of the benefits of applying the new WHO 2013 recommendations for ART.
Percentage of testing in tuberculosis patients and pregnant women	Stable. High coverage in some countries, but low regional figures and slow increase.
Percentage of patients that enter care with baseline CD4 <200 cells/mm ³ (data from national programs and, if none, from published articles)	Access to early diagnosis is suboptimal, although there is improvement in the availability of information based on routine data from national programs.
Percentage of patients with undetectable viral load	Limited information (only seven countries submitted data).
Community participation in peer support at testing and ART centers	Irregular participation, with limited and vulnerable coverage from a financial standpoint.

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Annex 1. The PAHO Strategic Fund and Antiretroviral Drugs

The PAHO/WHO Strategic Fund (SF), also known as the Regional Revolving Fund for Strategic Public Health Supplies, is available to countries as a regional procurement mechanism to improve availability and access to drugs and other supplies. All first- and second-line ARVs recommended by WHO (including the preferred regimens in fixed-dose combinations) can be acquired through the SF. Supplies for HIV diagnosis can also be acquired through the SF.

Of the 24 Member States that have signed agreements with the Fund, 10 have made ARV purchases through the Fund in recent years. Currently, ARV purchases constitute approximately 50% of total purchases completed by the SF. Although ARV

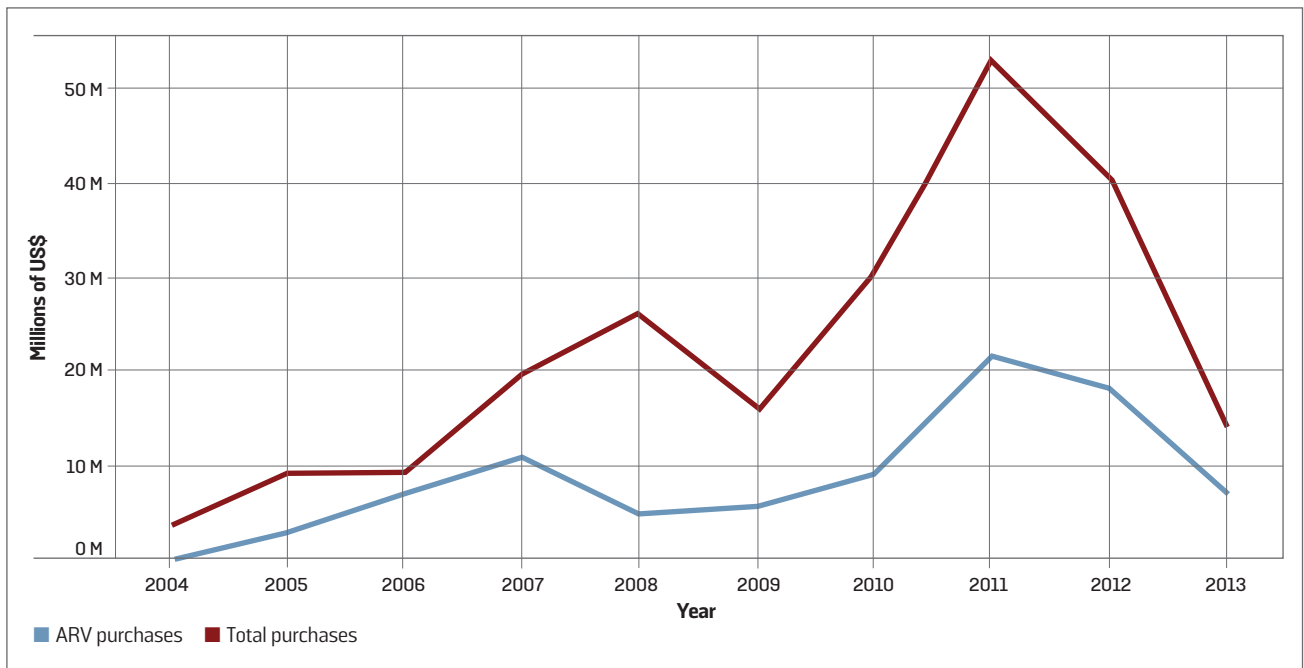
purchases vary a great deal from year to year, there has been an increase over time (Figure 1). Antiretroviral procurement through the SF, in US\$, increased more than 1,500 times from 2004 to 2012 and almost 4 times from 2008 to 2012.

Capitalization of the Strategic Fund

The SF has created a capital account that enables countries to acquire antiretrovirals and other supplies during a declared emergency, for example, in the event of a stock-out. The Fund can be used to prevent a scarcity of supplies in participating countries that are experiencing financing difficulties. In such situations the SF can advance funds to purchase supplies and avoid a stock-out. The account is funded through the allocation of 3% of the total cost of the products acquired by the participating countries. As a result, the

Figure 1

Purchases (total and ARV), in US\$, through the PAHO Strategic Fund, by year, 2004 to 2013



more the countries make their purchases through the Fund, the more their purchasing power will increase. The Fund has been successfully used to prevent ARV stock-outs in several countries, including Brazil, Guatemala and El Salvador.

ARV prices and long-term agreements

The SF, in coordination with PAHO's Procurement and Supplies Management Area (PRO), has entered into long-term agreements with manufacturers of prequalified

ARV generics that ensure the supply of certain drugs at a fixed price for the period of the contract, which tends to be 12 months. The ARV prices negotiated by the SF have decreased in recent years and are becoming very competitive in comparison with international reference prices. Prices obtained for the year 2013 are shown below (Table 1).

Specifically, in 2013, prices for the main ARVs fall below ARV prices offered by the Clinton Foundation HIV/AIDS Initiative, except in the case of TFV/3TC/EFV, which is 2% more expensive. All the products negotiated in long-term agreements are generic and may be subject to patent protection or other restrictions on marketing in the countries.

**Table
1**

Long-term agreements for antiretroviral products

Long-term agreement: Antiretroviral products

Validation period of the unit price				May 15 to december 31, 2013
Item	Product	Presentation	Unit	Unit price (FCA)USD\$
1	ABACAVIR 20 MG/ML SUSP BOTTLE 240 ML	240 ML BOTTLE	BOT	7.10
2	ABACAVIR 300 MG TABLETS	BOTTLE/60 TABLETS	BOT	11.23
3	ABACAVIR 600 MG + LAMIVUDINE 300 MG, TABLETS	BOTTLE/30 TABLETS	BOT	13.49
4	ATAZANAVIR 300 MG, CAPSULES	BOTTLE/30 TABLETS	BOT	15.00
5	EFAVIRENZ 200 MG, TABLETS	BOTTLE/30 TABLETS	BOT	1.50
6	EFAVIRENZ 50 MG, CAPSULES	BOTTLE/30 TABLETS	BOT	2.08
7	EFAVIRENZ 600 MG, TABLETS	BOTTLE/30 TABLETS	BOT	3.19
8	EFAVIRENZ 600 MG + LAMIVUDINE 300 MG + TENOFOVIR DISOPROXIL FUMARATE 300 MG	BOTTLE/30 TABLETS	BOT	11.00
9	EFAVIRENZ 600 MG + EMTRICITABINE 200 MG + TENOFOVIR 300 MG, TABLETS	BOTTLE/30 TABLETS	BOT	12.48
10	EMTRICITABINE 200 MG + TENOFOVIR 300 MG, TABLETS	BOTTLE/30 TABLETS	BOT	5.91
11	LAMIVUDINE 150 MG + NEVIRAPINE 200 MG + ZIDOVUDINE 300 MG, TABLETS	BOTTLE/60 TABLETS	BOT	8.11
12	LAMIVUDINE 150 MG + ZIDOVUDINE 300 MG, TABLETS	BOTTLE/60 TABLETS	BOT	6.10
13	LAMIVUDINE 300 MG + TENOFOVIR 300 MG, TABLETS	BOTTLE/30 TABLETS	BOT	4.60
14	LAMIVUDINE 30 MG + ZIDOVUDINE 60 MG, TABLETS	BOTTLE/60 TABLETS	BOT	1.98
15	LAMIVUDINE 10 MG/ML SUSP BOT/240 ML	BOTTLE/ 240 ML	BOT	1.50
16	LAMIVUDINE 150 MG, TABLETS	BOTTLE/60 TABLETS	BOT	1.80
17	LOPINAVIR 200 MG + RITONAVIR 50 MG, TABLETS	BOTTLE/120 TABLETS	BOT	20.00
18	LOPINAVIR 100 MG + RITONAVIR 25 MG, TABLETS	BOTTLE/60 TABLETS	BOT	8.50
19	NEVIRAPINE 200 MG, TABLETS	BOTTLE/60 TABLETS	BOT	2.16
20	NEVIRAPINE SUSP 10 MG/ML, BOT 240 ML	BOTTLE/ 240 ML	BOT	1.95
21	RITONAVIR 100 MG, TABLETS	BOTTLE/30 TABLETS	BOT	7.28
22	TENOFOVIR DISOPROXIL FUMARATE 300 MG, TABLETS	BOTTLE/30 TABLETS	BOT	3.58
23	ZIDOVUDINE 300 MG, TABLETS	BOTTLE/60 TABLETS	BOT	5.25
24	ZIDOVUDINE 100 MG, CAPSULES	BOTTLE/100 CAPSULES	BOT	4.50
25	ZIDOVUDINE 10 MG/ML, BOT/240 ML	BOTTLE/ 240 ML	BOT	2.10

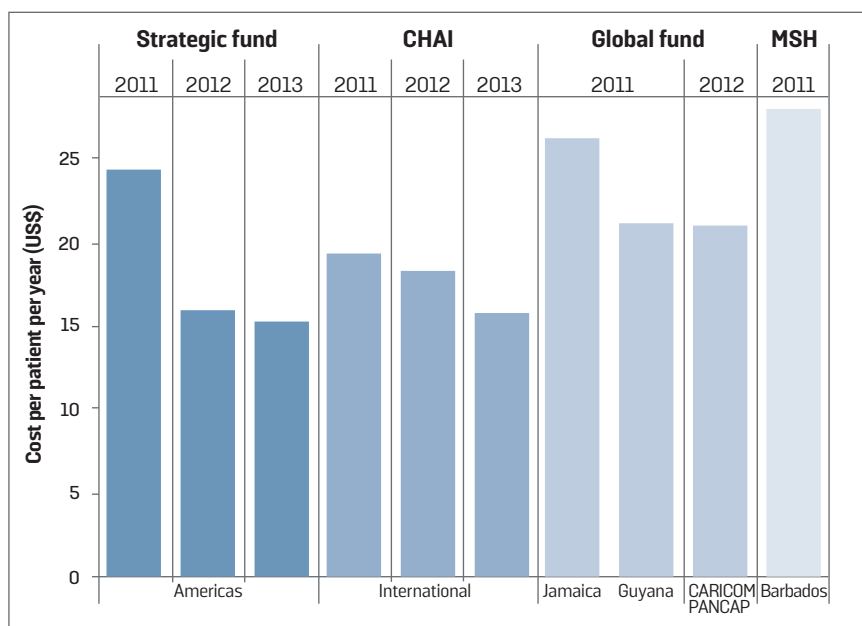
Figure 2 shows the price reduction obtained in the purchase of the fixed-dose combination of TFV/3TC/EFV that can currently be acquired through the SF at US\$ 132/year per treatment.

Other supplies for diagnosis and monitoring in ARV treatment

To increase access by countries to diagnostic tests for HIV and other sexually transmitted diseases, the Strategic Fund recently updated the list of rapid HIV tests. At present four countries in the region have begun to purchase rapid tests and the inclusion of rapid tests for syphilis is being evaluated, as well as supplies for measuring viral load and CD4.

Figure 2

Comparison of PAHO Strategic Fund prices with international reference prices and regional prices for TFV/FTC/EFV^a (2011-2013)



Source: Antiretroviral drug reference prices obtained from the Strategic Fund of the Pan American Health Organization. Antiretroviral drug prices. http://www.paho.org/hq/index.php?option=com_content&view=article&id=1042%3Aproduct-list-and-reference-prices-&catid=1159%3Astrategicfund&Itemid=986&lang=es

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Notes: For the Global Fund and MSH, only transactions by countries in Latin America and the Caribbean are shown. Global Fund prices are the most recent price paid. The prices for Jamaica and CARICOM/PANCAP include the cost of transportation; for Guyana it is not known whether cost of transportation is included; for Barbados, cost of transportation and insurance are included up to the port of destination.

a TFV: tenofovir; FTC: emtricitabine; EFV: efavirenz; CARICOM: Caribbean Community; PANCAP: Pan Caribbean Partnership against HIV and AIDS.

Strategic Fund technical cooperation

The Strategic Fund, managing procurement in coordination with the PAHO's Procurement and Supplies Management Area, fulfilled requests for price estimates and ARV purchases for 9 countries in the region in 2012: Brazil, Chile, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Paraguay and Venezuela.

The SF has been integrated into joint missions carried out with the countries and PAHO's Regional HIV Program for implementing the Treatment 2.0 initiative, for example in Argentina, El Salvador, Dominican Republic and Honduras. In these countries, concrete actions have been started for optimizing antiretroviral treatment in accordance with the WHO recommendations, such as inclusion and purchase of ARV fixed-dose regimens, review of the planning and programming processes for laboratory needs for new drugs and tests, and support for strengthening the management of drug and supplies procurement.

A tool for monitoring the ARV supply has also been developed and is included in the Regional Platform on Access and Innovation for Health Technologies, used in some countries of Central America to support management of the ARV supply.

For more information on technical cooperation offered by the SF, procedures, the list of drugs and supplies, price schedules, and more, visit the Strategic Fund Web page at www.paho.org/strategicfund.

Table 2

List of rapid HIV tests available through the Strategic Fund

Alere Determine HIV - 1/2
InstantCHEK™ HIV1+2
ImmunoComb™ HIV 1&2
First Response® HIV 1-2.0
Uni-Gold™ HIV
Alere Determine HIV Combo - 1/2 AG/AB
HIV 1/ 2 STAT-PAK® Assay
HIV 1/2 STAT-PAK® Dipstick Assay
OraQuick® HIV-1/2 Rapid Antibody Test
Double Check Gold™ HIV1&2
SD BIOLINE HIV-1/2 3.0

Annex 2. Characteristics of National Guidelines for Antiretroviral Treatment in March 2013, Latin America and the Caribbean, by country

Country	Have national guidelines been updated according to WHO global or regional 2010 guidelines?				CD4 cutoff for ART initiation in asymptomatic adults (cells/mm ³)	ART initiation irrespective of CD4 count if:			
	Adult guidelines	Year updated	Pediatric guidelines	Year updated		Active Tuberculosis	Hepatitis B	Sero-discordant couples	Option B+
Anguilla	Yes		No		350				Planned
Argentina	Yes	2013	Yes	2012	500	Yes	Yes	Yes	Yes
Aruba								No	No
Barbados	Yes	2013	Yes	2013	350	No	Yes	No	No
Belize	Yes	2012, in process	Yes	2012	500	Yes	Yes	Yes	Yes
Bolivia	Yes	2011, in process	Yes	2011	500	Yes	No	No	Yes
Brazil	Yes	2013	Yes	2011, in process	500	Yes	Yes	Yes	No
Colombia	Yes	In process	Yes	In process	250				Yes
Costa Rica	Yes	2011	Yes	2011	500	Yes	Yes	Yes	Yes
Cuba	Yes	2011, in process	Yes	2012	350	Yes	Yes	No	Yes
Dominica	Yes	2012	Yes	2012	350	Yes	Yes		
Dominican Republic	Yes	2013			350		No	No	No
Ecuador	Yes	2013	Yes	2013	500	Yes	Yes	No	Yes
El Salvador	Yes	2011, in process	Yes	2011	350, in review	Yes	No	Yes	Planned
Grenada	Yes	2012	Yes	2012	350	Yes	Yes	No	Yes
Guatemala	Yes	2012-13	Yes	2012-13	350				Yes
Guyana	Yes	2011, in process	Yes	2011	350	Yes	No	No	Yes
Haiti	Yes		Yes		350	Yes	Yes	No	Yes
Honduras	Yes	2013	Yes	2013	500	Yes	Yes	Yes	Yes
Mexico	Yes	2012	Yes	2012	350	Yes	Yes	No	Yes
Nicaragua	No	2009, in process	Yes	2012	350	No	Yes	No	Yes
Panama	Yes	2010	Yes	2010	350	Yes	Yes	No	No
Paraguay	Yes	2012	Yes	2011, in process	350	Yes	Yes	No	No
Peru	Yes	2012, in process	Yes	2013	350	No	Yes	No	Yes
Suriname ^a	No	2010	No	2010	200, in practice, initiation with <350	Yes	Yes	No	Yes
Turks and Caicos Islands					350		Yes	Yes	No
Uruguay	Yes	2011	Yes	2013	350	Yes	Yes	Yes	Yes
Venezuela	Yes	2012-14	Yes	2012-14	350	Yes	Yes	Yes	Yes
Virgin Islands ^b	Yes	2012	Yes	2012	In review	No	No	No	Planned

Notes: Anguilla, El Salvador, and British Virgin Islands have planned to change to option B+. ^aSuriname recommends that persons with a CD4 between 200 and 350 cells/mm³ begin ART. Treatment is also recommended for the serodiscordant partner of an HIV+ person, but neither of these recommendations is listed in the current guidelines. ^bIn the British Virgin Islands the CAREC (Caribbean Epidemiology Center) guidelines are used.

Annex 3. Civil society organizations surveyed on community participation and ARV stock-outs, by country

Country	Organizations and/or people who participated in the response on:	
	Civil society peer support for HIV testing and counseling centers and ARV treatment centers	Civil society peer support to strengthen retention at ART centers and stock-outs
Argentina	Red Bonaerense de Personas Viviendo con VIH o RBPVIH (Buenos Aires Network of Persons Living with HIV) Fundación Huésped (Host Foundation)	Buenos Aires Network of Persons Living with HIV Host Foundation
Barbados	CARE Barbados	CARE Barbados
Bolivia	Asociación Un Nuevo Camino (A New Road) Vivo en Positivo (I Live Positively) Fundación Redvihda (Life Network Foundation) Red Nacional de Personas Viviendo con el VIH y Sida (REDBOL) (National Network of People Living with HIV and AIDS)	A New Road I Live Positively Life Network Foundation National Network of People Living with HIV and AIDS
Chile		Julio Vargas Araya, President, Agrupación PUKARA (PUKARA Group) ESPLAVIDA de la Comuna de Padre Las Casas Temuco (Persons Living with HIV in Padre Las Casas Temuco Commune) Agrupación Grupo Acción Solidaria Región metropolitana Santiago (Santiago Metropolitan Region Solidary Group Action Group) Agrupación Positivamente Positivos, Talcahuano (Positively Positive Group, Talcahuano) Agrupación Renacer de Chillán (Chillán Rebirth Group) Agrupación AMISEX de Lota-Coronel (Lota-Coronel AMISEX Group)
Colombia	Ligia López Rivas, Nubia Red, Nayibe Gil, Paola Pits	Ligia López Rivas, Nubia Red, Nayibe Gil, Paola Pits
	Asociación de Mujeres Buscando Libertad (Association of Women Seeking Freedom) (ASMUBULI)	Association of Women Seeking Freedom (ASMUBULI)
Costa Rica		Focal points at REDCA+ CR (Red Centroamericana de Personas viviendo con VIH Costa Rica (Central American Network of Persons Living with HIV in Costa Rica) Representatives from Asociación Esperanza Viva (Hope Is Alive Association)
Dominican Republic	Dulce Almonte, REDOVIH (Red Dominicana de Personas que Viven con el VIH/SIDA) (Network of Persons Living with HIV/AIDS) Pepe Castro, NGO AIDS Coalition Felipa García, ASOLSIDA (Alianza Solidaria Para La Lucha Contra El VIH/SIDA) (Solidary Alliance in the Fight against HIV/AIDS) Félix Reyes, REDNAJGER (Red Nacional de Jóvenes viviendo con VIH y/o SIDA) (National Network of Youth living with HIV)	Dulce Almonte, REDOVIH Pepe Castro, NGO AIDS Coalition Felipa García, ASOLSIDA Félix Reyes, REDNAJGER
Ecuador	Coalición ecuatoriana de personas que viven con VIH (Ecuadorian coalition of persons living with HIV) (CEPVVS)	Ecuadorian coalition of people living with HIV: Edwin Hidalgo, Fausto Vargas, Ernesto Moon and Santiago Jaramillo
El Salvador	PASMO Entre Amigos (Between Friends) Asociación ATLCATL (ATLCATL Association) ICW-El Salvador (International Community of Women Living with AIDS) REDSAL (Salvadoran Network of Persons Living with HIV/AIDS)	Otoniel Ramírez Hernández, Regional Secretary, REDCA+
Guatemala	Asociación Gente Nueva (New People Association) and key personnel for projects carried out in the capital and in the three departmental capitals of the Republic of Guatemala (Director, Administrator, Coordinator of Education and Head of Monitoring and Evaluation)	New People Association

continues

Annex 3 continued

Country	Organizations and/or people who participated in the response on:	
	Civil society peer support for HIV testing and counseling centers and ARV treatment centers	Civil society peer support to strengthen retention at ART centers and stock-outs
Honduras	<p>ASONAPVSIIDA (Honduran Association for People Living with HIV/AIDS): Yolanda Vélez, GAA, Hospital del Tórax/Grupo Triunfando con VIH+ (Thorax Hospital/Winning with HIV+ Group)</p> <p>Ery Zavala Palacios, GAA, Grupo Buen Samaritano (Good Samaritan Group), Hospital Escuela (Escuela Hospital)</p> <p>Leticia Suyapa Calix, GAA, Good Samaritan Group, Thorax Hospital</p> <p>María Julia, GAA, Good Samaritan Group, Alonso Suazo Health Center</p> <p>Fredy García, Good Samaritan Group, Alonso Suazo Health Center</p> <p>Sandra Lorena Ruiz, GAA, Solidaridad y Vida (Solidarity and Life), Escuela Hospital</p> <p>Wendy Savillon, GAA Joshua 1:9-IHSS (Honduran Social Security Institute)</p> <p>Asociación Multicultural de Mujeres + (Multicultural Association of HIV+ Women): Benita Ramírez</p> <p>Foro Nacional de Sida (National AIDS Forum): Xiomara Bu</p>	<p>Alonso Suazo Health Center</p> <p>Fredy García, Good Samaritan Group, Alonso Suazo Health Center</p> <p>Sandra Lorena Ruiz, GAA, Solidarity and Life, Escuela Hospital;</p> <p>Wendy Savillon, GAA Joshua 1:9-IHSS</p> <p>Committee for access to ARV of LATCA ITPC</p> <p>Multicultural Association of +Women: Benita Ramírez</p> <p>National AIDS Forum: Xiomara Bu</p>
Nicaragua	<p>Carlos Contreras, ANICP+VIDA (Asociación Nicaragüense de Personas Positivas Luchando por la Vida) (Nicaraguan Association of Positive Persons Fighting for Life)</p> <p>Center for Health Research and Studies /National Autonomous University of Nicaragua (CIES-UNAN Managua)</p> <p>Norman Gutiérrez, CEPRESI (Center for Education and Prevention of AIDS)</p> <p>CEPRESI, ANIC+VIDA, XOCHIQUETZAL, REDTRANS (Trans Network), among others</p>	<p>Silvia Martínez REDTRANS Nicaragua, member of the MCP (Country Coordinating Mechanism)</p> <p>Carlos Contreras-ANICP+VIDA</p> <p>(Center for Health Research and Studies/National Autonomous University of Nicaragua (CIES-UNAN Managua)</p> <p>Norman Gutiérrez, CEPRESI</p> <p>ICW (InnerCHANGE WORKS) NICARAGUA through Latin ICW and ASONVIHSIDA (Asociación Nicaragüense VIH/SIDA Gente Positiva) (Nicaraguan Association of HIV/AIDS+ Persons)</p>
Paraguay	<p>Network of NGOs working in HIV/AIDS-PY: Tatarendy, Fundación Vencer (Conquer Foundation) Paraguay, Unes (Unidas en la Esperanza) [United in Hope], Ñepyrú Group</p> <p>Socialized with a plenary session of organizations: Fundación Marco Aguayo (Marco Aguayo Foundation), PREALPA (Prevención Alto Parana) (Alto Parana Prevention) Asociación Vivir (Live Association)</p>	<p>Network of NGOs working in HIV/AIDS in Paraguay: Tatarendy, Conquer Foundation, Paraguay, Unes, Ñepyrú Group</p> <p>Socialized with a plenary session of organizations: Fundación Marco Aguayo (Marco Aguayo Foundation), PREALPA Live Association</p>
Peru	<p>Coordinated by GIVAR (Grupo de Impulsor de Vigilancia de Desabastecimiento de Antirretrovirales) (ARV Stock-out Monitoring Stimulus Group)</p>	<p>Coordinated by GIVAR</p>
Saint Lucia	<p>Tender Loving Care (TLC)</p>	<p>CRN+ (Caribbean Regional Network+), CHAA (Caribbean HIV & AIDS Alliance), TLC</p>
Suriname	<p>Double Positive Foundation</p> <p>Lovely Hands Foundation</p> <p>Foundation He and HIV</p>	<p>Double Positive Foundation</p>
Uruguay	<p>Laura Pérez Ottonello, Uruguayan PVVS (personas que viven con VIH o SIDA) (persons living with HIV or AIDS) Network Advisor and Member of REDLA (Red Latinamericana de Investigaciones en Drogas) (Latin American Network for Drug Research)], GNP (Global Network of People Living with HIV/AIDS) Board of Directors for the region of Latin America and the Caribbean</p> <p>María José Fraga Torres, FP REDLA+ Uruguay, Member CONASIDA (Comisión Nacional de Sida) [National AIDS Commission]and MCP URUGUAY</p>	<p>Laura Pérez Ottonello, Uruguayan PVVS_REDLA Network Advisor</p> <p>María José Fraga Torres, FP REDLA Uruguay, CONASIDA and MCP Uruguay.</p> <p>Yenny Saw, FP REDLA, substitute</p>
Venezuela	<p>Red Venezolana de Gente Positiva (Venezuelan Network of Positive Persons)/Alberto Nieves, Executive Director of ACCSI (Acción Ciudadana Contra el Sida) [Citizens Acting Against AIDS]</p>	<p>Venezuelan Network of Positive Persons/ Alberto Nieves, Executive Director of ACCSI</p>

Annex 4. Number of people in antiretroviral treatment and antiretroviral treatment coverage, Latin America and the Caribbean, by country, ^a 2012

Country	People in ART (December 2012)	People that need ART 2012 ^b	ART coverage (%) (adults and children) 2012	ART coverage (%) 2012 interval (adults and children)	Children in ART (December 2012)	ART coverage children (%) 2012	ART coverage adults (%) 2012
Antigua and Barbuda	248	---	---	---	6	---	---
Argentina	50,725	62,000	81	[72-90]	3,000	[90-94]	81 [71-90]
Bahamas	2,819	3,800	73	[71-76]	39	[34-38]	74 [72-77]
Barbados	1,012	960	>95	[95->95]	8	[66-79]	>95 [>95->95]
Belize	1,261	1,800	71	[67-77]	95	[54-70]	73 [68-77]
Bolivia	2,364	6,800	35	[24-50]	86	[11-26]	36 [25-52]
Brazil	297,138	---	---	[82-93]	6,150	[92->95]	[81-93]
Chile	19,071	22,000	86	[67->95]	173	[>95->95]	86 [67->95]
Colombia	39,397	71,000	55	[44-71]	6,249	[62->95]	51 [41-65]
Costa Rica	3 955	5,300	74	[69-80]	63	[25-34]	76 [71-82]
Cuba	8,098	3,900	>95	[>95->95]	24	[>95->95]	>95 [>95->95]
Dominica	56	---	---	---	0	---	---
Dominican Rep.	22,221	29,000	77	[71-85]	1,083	[56-72]	78 [72-86]
Ecuador	13,938	25,431	55	[44-93]	550	[33-78]	55 [44-93]
El Salvador	6,978	14,000	50	[38-72]	335	[35-82]	50 [38-72]
Grenada	92	---	---	---	1	---	---
Guatemala	15,136	30,000	51	[37-87]	1,024	[22-64]	53 [39-89]
Guyana	3,717	4,000	93	[60->95]	201	[>95->95]	93 [58->95]
Haiti	43,229	72,000	60	[55-65]	2 265	[29-40]	63 [58-68]
Honduras	8,970	15,000	58	[51-68]	783	[37-55]	60 [53-70]
Jamaica	10,468	15,000	69	[61-78]	454	[>95->95]	68 [60-77]
Mexico	84,058	103,000	82	[74-91]	1,744	[83->96]	82 [74-91]
Nicaragua	2,190	3,100	72	[53->95]	104	[69->95]	72 [52->95]
Panama	7,310	9,600	76	[62-95]	310	[62->95]	76 [62-93]
Paraguay	3,787	5,200	73	[50->95]	181	[64->95]	72 [49->95]
Perú	22,157	37,000	59	[38->95]	596	[21-83]	60 [39->95]
Saint Kitts and Nevis	48	---	---	---	1	---	---
Saint Lucia	176	---	---	---	2	---	---
St Vincent and the Grenadines	202	---	---	---	2	---	---
Suriname	1,372	2,100	66	[63-71]	84	[80-93]	65 [62-70]
Trinidad and Tobago	5,565	7,700	72	[69-75]	158	[69-72]	72 [69-75]

continues

Annex 4 continued

Country	People in ART (December 2012)	People that need ART 2012 ^b	ART coverage (%) (adults and children) 2012	ART coverage (%) 2012 interval (adults and children)	Children in ART (December 2012)	ART coverage children (%) 2012	ART coverage adults (%) 2012
Uruguay	4,048	6,200	65	[53-81]	120	[>95->95]	64 [52-81]
Venezuela	43,032	61,000	71	[55->95]	972	[27-74]	72 [56->95]
Total	715,000 ^{bc}	950,000	75	[66-85]	26,700 ^b	67 [50 -82]	76 [66 -85]
Total Latin America	624,000 ^b	822,000	76	[66 -87]	22,300 ^b	73 [56->95]	76 [66 -86]
Total Caribbean	90,400 ^b	128,000	71	[65 -77]	4,200 ^b	45 [39-52]	73 [67 -79]

Source: UNAIDS. National reports on progress in the world response to AIDS 2013 and UNAIDS estimates of antiretroviral treatment needs.

Notes: aFigures may vary with respect to previously published figures by UNAIDS or WHO due to updates. Figures for subregions may vary due to different subregion classifications.

^b Figures are rounded.

^c The regional figure for people in ART includes data from low-, average-, income countries of Latin America and the Caribbean. Regional ART coverage, total, and in adults and children, is calculated only for middle- and low-income countries.

---: Not available

Excerpt

Presentation of the results of analyzing antiretroviral drug prices in the Area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean

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Introduction

The Horizontal Technical Cooperation Group (HTCG) in Latin America and the Caribbean, with the consent of AIDS program directors, agreed to collect strategic data on the purchase prices of antiretroviral drugs (ARV) in each country. To implement the agreement, a data collection tool for

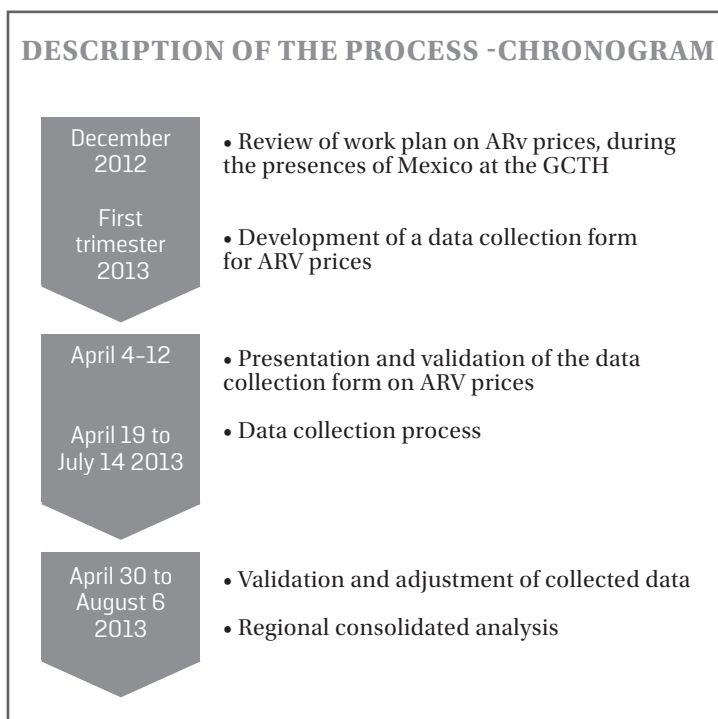
ARV drug procurement prices was developed with different fields for the technical characteristics of each drug (specifically, pharmaceutical form and market presentation), purchaser data, market characteristics, price components, comments on the purchase, and contact data. Work proceeded on the basis of a schedule with milestones marking the collection of the information, validation, and completion of a regional consolidated analysis (Figure 1).

Objective

The main objective of the exercise was to collaborate in the management of ARV drug procurement through the use of information shared by the HTCG countries, basically to discover the most up-to-date procurement prices, the best negotiations, and all information on antiretroviral drug prices that countries consider important to share with the HTCG. The purpose of this exercise was not to evaluate the quality of the purchases. In a first phase, with a view to presenting the tool's potential, it was agreed to complete an analysis of the consolidated information, comparing the cost of certain regimens and the purchase prices of ARV drugs in the participating countries.

At a later stage, a more exhaustive analysis will contribute to theories about the reasons for price differences between countries (patents, method of purchase, offer of only one or of several drugs, etc.).

Figure 1. The work process



Methodology

This section describes the criteria for the selection of ARV drugs and for the comparative analysis of the strategic information compiled.

The criteria for the comparative analysis of ARV regimen prices were the following:

- Drugs were selected that had the same technical characteristics (pharmaceutical form, strength and marketed form), with the exception of certain cases in which the combination form was not available and the individual ARV drugs that compose the form were used in the analysis (those particular cases are identified in the presentation of the results).

- The annual cost per patient of each regimen was calculated on the basis of the period analyzed, including the most recent years; this is due to the fact that price information for every ARV drug in every year of the period analyzed was not available (except for emtricitabine/tenofovir + efavirenz).¹

- The most recent price for the period selected in each regimen was used and, in the case of a year with more than one purchase of the same drug, the lowest price per minimum unit was used, except for the 2012-2013 period, for which the best price was used, regardless.

- If the combination form of the drug was not available, the prices of the individual drugs in the combination were added together and used.

The selection of ARV regimens for the comparative price analysis was based on the regimens most commonly used in the region and the preferred regimens currently recommended by WHO guidelines:

- Lamivudine/zidovudine (150 mg/300 mg) tablets + efavirenz tablets (600 mg

- Lamivudine/zidovudine (150 mg/300 mg) tablets + lopinavir/ritonavir tablets (200/50 mg)

- Emtricitabine/tenofovir disoproxil fumarate; each tablet contains 200 mg/300 mg + efavirenz tablets (600 mg)

- Emtricitabine/tenofovir disoproxil fumarate; each tablet contains 200 mg/300 mg + lopinavir/ritonavir tablets (200 mg/50 mg)

- Efavirenz, emtricitabine, tenofovir disoproxil fumarate fixed-dose combination; each tablet contains 600 mg/200 mg/300 mg

Daily dose:

- Lamivudine/zidovudine (150 mg/300 mg) tablets: daily dose 2 tablets

- Lopinavir/ritonavir tablets (200 mg/50 mg): daily dose 4 tablets

- Efavirenz 600 mg: daily dose 1 tablet

- Emtricitabine/tenofovir disoproxil fumarate; each tablet contains 200 mg/300 mg: daily dose 1 tablet

- Efavirenz, emtricitabine, tenofovir disoproxil fumarate fixed-dose combination: daily dose 1 tablet

Calculation of the annual cost of the regimens per patient:

In order to calculate the annual cost per patient of the ARV regimens selected, the required daily dose was multiplied by the unit price of each drug, multiplied by the number of days in the month and by the number of months in the year, and the results for each component of the regimen were then added together, as demonstrated in the following example for lamivudine/zidovudine + efavirenz:

- lamivudine/zidovudine (daily dose: 2 tablets):

(price x tablet) x 2 x 30 x 12 = subtotal 1

- efavirenz (daily dose: 1 tablet):

(price x tablet) x 30 x 12 = subtotal 2

- then, subtotal 1 + 2 = annual

cost of the regimen per patient.

The criteria for the comparative analysis of individual ARV drug prices were the following:

- The latest year with available information was used. Since 2012 was the year information from the most participating countries was available, that is the year of reference used.

- If information on several purchases of the same drug in the same year was available, the best procurement price per minimum unit of the dosage form was used.

The individual ARV drugs included in the analysis were the following:

- abacavir 300 mg tablets
- atazanavir 200 mg capsules
- raltegravir 400 mg tablets

General results

Of the 20 countries that are members of the HTCG, 14 completed the form, which means 70% of the countries participated in the collection and consolidation of the information.

With 2010 as the starting year for collecting data, five countries submitted data on purchases made up to the early months of 2013 inclusive, and 2012 was the year with the most information submitted by all countries.

From the consolidated information, data on 1,023 purchases including unit price were obtained, and encompassed 27 active ingredients of ARV drugs.

Results of the regional consolidated analysis

The analysis yielded a comparison of unit purchase prices and the annual cost of the regimen per patient, with the regional average and the median calculated as a reference due to the broad range of figures. A cross-section

¹ This allowed some countries to be included that did not have complete information for 2012 and 2013.

study in time was carried out as a first approximation, but still, at this stage, it was not possible to analyze the entire period due to all the variables that could have influenced the final price of each ARV drug.

Thus it is important to emphasize that there are certain limitations to be considered at this stage of the analysis:

The cost of the ARV regimen had to be calculated keeping in mind the period of analysis, since, as mentioned previously, there was not sufficient information on the prices of each

ARV for one year due to the fact that the analysis was focused on sharing the prices of the best negotiation completed and any information on antiretroviral drug prices considered worth sharing. As a result, the information obtained does not necessarily include all purchases made by each country. For the same reason, this information cannot be correlated with other data, such as the number of patients monitored per year.

Also, some of these drugs can be used in more than one regimen and with the information obtained it will not

always be possible to know how the drugs are assigned among the possible regimens that include them, that is, no correlation can be made with the most commonly used regimens in each country.

It is also important to consider the following clarification when interpreting the results:

For ARV regimens combining at least two drugs, when calculating the annual cost of the regimen, the drug that requires more daily tablets will have greater weight as seen, for example, with the combination of lamivudine/

Table 1. Participating countries and period with information

Country	2009 quarter	2010 quarter	2011 quarter	2012 quarter	2013 quarter
Argentina		1st 3rd 4th	2nd 3rd 4th	2nd 3rd 4th	1st
Belize				1st 4th	1st
Brazil				1st 2nd 3rd 4th	
Chile	4th	2nd 3rd 4th	1st 2nd 4th	1st	
Costa Rica				1st 2nd 3rd 4th	
Dominican Rep.		4th	1st 2nd 3rd	1st 2nd 3rd 4th	1st
Ecuador				3rd 4th	1st 2nd
El Salvador		1st	1st 2nd	1st 2nd 4th	1st
Honduras			✓*	✓*	
Mexico		2nd 3rd	1st 2nd 3rd 4th	1st 2nd 3rd 4th	1st 2nd
Panama				1st 3rd 4th	
Paraguay		1st 4th	4th	1st 2nd	1st 2nd
Peru				2nd 4th	1st 2nd
Uruguay					1st

* Information allocated by year

Table 2. Unit price and annual cost per patient

Country	Unit price (US\$)		Annual cost of regimen per patient (US\$) (2011-2013)
	Lamivudine/zidovudine	Efavirenz	
Dominican Rep. (2013)	0.12	0,11	126
Belize (2012/13)	0.12	0.12	130
El Salvador (2012)	0.12	0.14	137
Ecuador (2012/13)	0.13	0.13	144
Peru* (2013)	0.15	0.22	187
Honduras (2012)	0.16	0.26	209
Costa Rica** (2012)	0.37	0.19	336
Panama (2012)	0.35	0.32	367
Argentina (2012)	0.50	0.71	617
Brazil (2012)	0.54	0.66	626
Paraguay (2011)	1.35	0.19	1,037
Uruguay (2013)	0.86	1.37	1,115
Chile (2011/12)	0.54	4.36	1,957
Mexico (2012)	2.17	1.11	1,959
Median			352
Average			639

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STD and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG; 2013.

zidovudine + efavirenz, in which two tablets and one tablet respectively are required daily.

Comparative analysis of regimens

1) Lamivudine/zidovudine (150 mg/300 mg) tablets + efavirenz tablets (600 mg)
The annual cost of treatment per patient for this regimen ranges between US\$ 126 and \$1,959, which represents a difference of up to 15 times. The average reference figure is \$639. The median of \$352 is almost half the average and demonstrates the great variation in

prices, which have been grouped into three ranges (\$100 to \$200, \$300 to \$600 and \$1,000 to \$2,000).

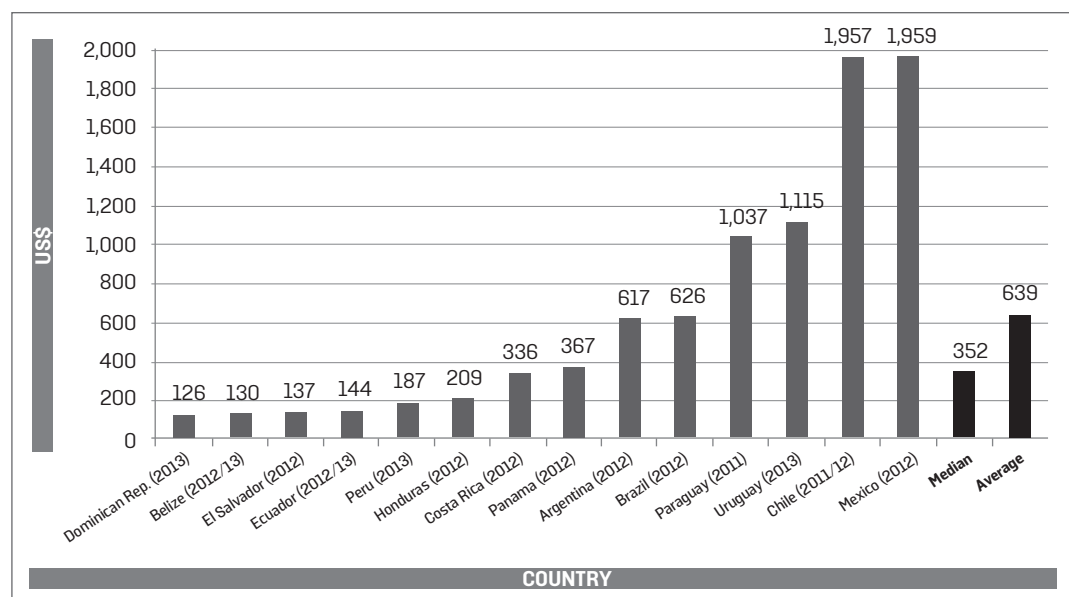
It was not possible to search for the reasons behind these differences in prices because the samples were limited by the selection criteria previously explained. That is, in this sample no causal relationships were seen that might clearly explain the differences in purchase prices in each country.

2) Lamivudine/zidovudine (150 mg/300 mg) tablets + lopinavir/ritonavir (200 mg/50 mg) tablets

The lamivudine/zidovudine + lopinavir/ritonavir regimen has an annual cost per patient that ranges between US\$ 331 and \$4,035 for the sample analyzed. This indicates differences of up to 12 times between the lowest figure and the highest. The average reference figure is \$1,620. The median of \$1,232 is close to the average, but there is a great variation that can be grouped into three ranges (\$300 to \$799, \$800 to \$1,600 and \$2,600 to \$4,100).

In this regimen lopinavir/ritonavir has a greater percentage weight in the annual cost, since the daily dose requires

Figure 2. Annual cost per patient for lamivudine/zidovudine + efavirenz, by country 2011-2013



Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013

Table 3. Unit price and annual cost per patient for lamivudine/zidovudine + lopinavir/ritonavir

Country	Unit price (US\$)		Annual cost of regimen per patient (US\$) (2011-2013)
	Lamivudine/zidovudine	Lopinavir/ritonavir	
Dominican Rep. (2013)	0.12	0.17	331
Belize (2013)	0.12	0.19	360
El Salvador (2012)	0.12	0.30	518
Peru* (2013)	0.15	0.36	626
Honduras (2012)	0.16	0.39	677
Ecuador (2013)	0.13	0.51	837
Brazil (2012)	0.54	0.48	1,079
Paraguay (2011/12)	0.35	0.29	1,384
Costa Rica** (2012)	0.37	0.88	1,535
Panama (2012)	0.35	1.67	2,651
Uruguay (2013)	0.86	1.54	2,843
Argentina (2012)	0.50	1.76	2,895
Chile (2011/12)	0.54	1.75	2,907
Mexico (2012)	2.17	1.72	4,035
Median			1,232
Average			1,620

* In the case of Peru the commercial presentation contained a greater amount of drug in both drugs when compared to the rest of the countries.

** In the case of Costa Rica, the individual drugs lamivudine and zidovudine were combined because they did not have the combined formulation.

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

four pills, while the daily dose of lamivudine/zidovudine is two tablets. Thus, for lopinavir/ritonavir, looking at the method of purchase as hypothetically causing the differences in purchase prices, it is seen that the highest prices correspond to direct purchase and local competitive bidding, and the lowest prices correspond to international competitive bidding. However, the relationship between method of purchase and price is not clear, since direct purchase and local competitive bidding are also seen (although less frequently) among the lower prices. There is a single case, the fifth lowest unit price (US\$ 0.30), in which the country made the purchase through the PAHO SF (Strategic Fund).

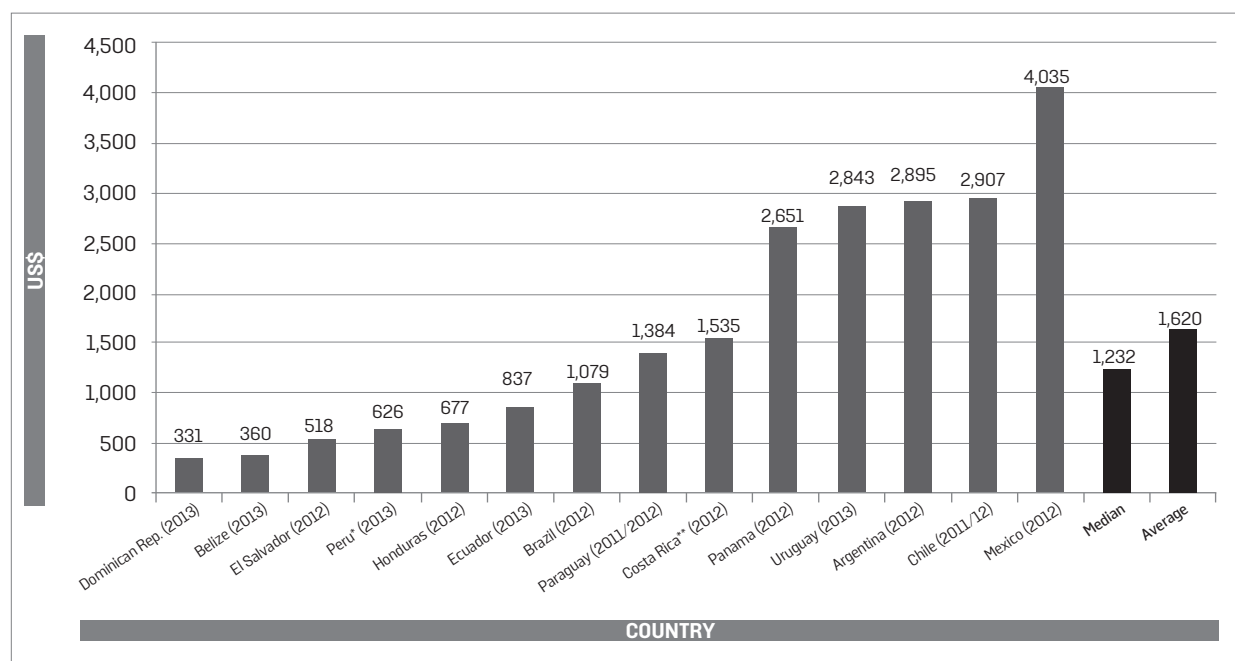
For lamivudine/zidovudine, no causal relationship can be seen between price and method of purchase, but the same situation as in the previous case arises, where procurement through the PAHO Strategic Fund falls among the most affordable unit prices (US\$ 0.12).

The only country that purchased the drugs for this regimen through the PAHO Strategic Fund had an annual regimen cost among the most affordable on the list (third position). Considering the greater percentage weight of lopinavir/ritonavir in the cost of this regimen, the five above-average countries in annual drug cost procure the drug through local competitive bidding or direct purchase from the same laboratory

and there are no other products or proprietary drugs available in the country (except for one country); that is, based on the information submitted, there is no competition in their markets for this specific drug. However, these coincidental characteristics in these five countries are not sufficient to draw conclusions on the variation of the annual cost per patient.

3) Emtricitabine/tenofovir (200 mg/300 mg) tablets + efavirenz (600 mg) tablets
The annual cost for this regimen ranges between US\$ 119 and \$9,174, a difference of 77 times, with an average of \$2,411 and a median of \$1,579, and greatly varying cost groups, the first in the \$100 to \$800 range, a second group in the \$2,300 to \$4,500 range,

Figure 3. Annual cost per patient for lamivudine/zidovudine + lopinavir/ritonavir, by country, 2011-2013



Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

and a single case with an annual cost higher than \$9,000. Note that the variability in the cost of the regimen is related mainly to the unit price of emtricitabine/tenofovir.

4) Emtricitabine/tenofovir (200 mg/300 mg) tablets + lopinavir/ritonavir (200 mg/50 mg) tablets

The annual cost for this regimen ranges between US\$ 349 and \$10,124, a difference of 29 times, with an average of \$3,555 and a median of \$3,312. As with the previous regimen, the variability in cost is related mainly to the unit price of emtricitabine/tenofovir.

5) Efavirenz/emtricitabine/tenofovir fixed-dose combination (600 mg/200 mg/300 mg) tablets

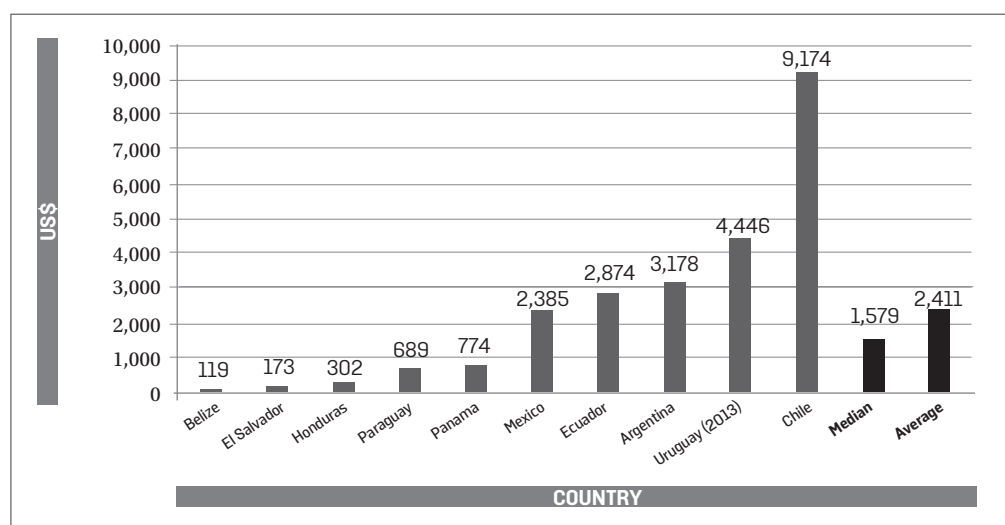
The annual cost for this regimen ranges between US\$ 158 and \$2,643, a difference of 16.7 times, with an average of \$1,190 and a median of \$625.

Table 4. Unit price (US\$) and annual cost per patient (US\$)

Country	Unit price (US\$)		Annual cost of regimen per patient (US\$) (2012)
	Emtricitabine/tenofovir	Efavirenz	
Belize	0.21	0.12	119
El Salvador	0.34	0.14	173
Honduras	0.58	0.26	302
Paraguay	1.73	0.19	689
Panama	1.83	0.32	774
Mexico	5.51	1.11	2,385
Ecuador	7.85	0.13	2,874
Argentina	8.12	0.71	3,178
Uruguay (2013)	10.98	1.37	4,446
Chile	21.12	4.36	9,174
Median			1,579
Average			2,411

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Figure 4. Annual cost per patient for emtricitabine/tenofovir + efavirenz, by country, 2012



Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Comparative analysis of individual ARVs
Three individual ARV drugs were selected for the comparative price analysis, two of which (atazanavir and raltegravir) are not used in first-line regimens. Information for atazanavir, despite submissions from few countries, was included in order to have reference figures for the region.

6) Abacavir tablets (300 mg)

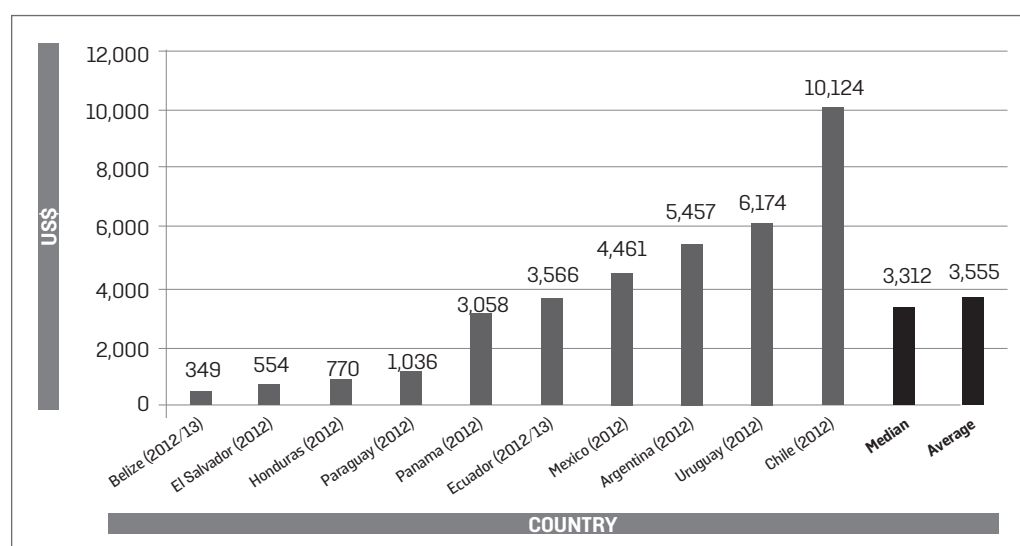
In the example analyzed, most countries had prices for purchases made in 2012, except for the cases indicated in Table 7, which were included to expand the analysis and correspond to periods close to 2012. The cost of abacavir ranges between US\$ 0.21 and \$4.94, with a difference of 23.5 times, and an average of US\$ 1.08, which shows the variability of the prices for procuring the drug in the countries of the region.

Table 5. Unit price and annual cost per patient for emtricitabine/tenofovir + lopinavir/ritonavir

Country	Unit price (US\$)		Annual cost of regimen per patient (US\$) (2012/13)
	Emtricitabine/tenofovir	Lopinavir/ritonavir	
Belize (2012/13)	0.21	0.19	349
El Salvador (2012)	0.34	0.30	554
Honduras (2012)	0.58	0.39	770
Paraguay (2012)	1.73	0.29	1,036
Panama (2012)	1.83	1.67	3,058
Mexico (2012)	5.51	1.72	4,461
Ecuador (2012/13)	7.85	0.51	3,566
Argentina (2012)	8.12	1.76	5,457
Uruguay (2013)	10.98	1.54	6,174
Chile (2012)	21.12	1.75	10,124
Median			3,312
Average			3,555

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Figure 5. Annual cost per patient for emtricitabine/tenofovir + lopinavir/ritonavir, by country, 2012-2013



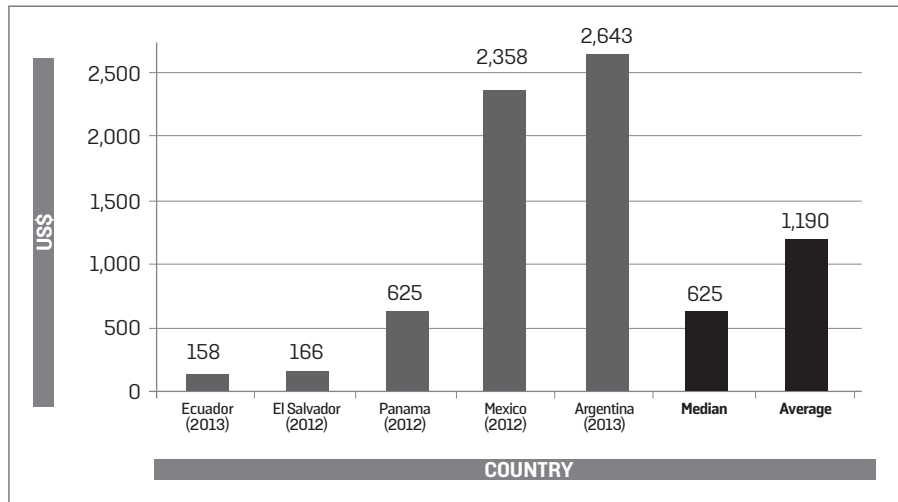
Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Table 6. Unit price and annual cost for efavirenz/emtricitabine/tenofovir fixed-dose combination

Country	EFV/emtricitabine/TDF fixed-dose combination unit price (US\$)	Annual cost per patient (US\$) (2012/13)
Ecuador (2013)	0.44	158
El Salvador (2012)	0.46	166
Panama (2012)	1.74	625
Mexico (2012)	6.55	2,358
Argentina (2013)	7.34	2,643
Median		625
Average		1,190

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Figure 6. Annual cost for efavirenz/emtricitabine/tenofovir fixed-dose combination, by country



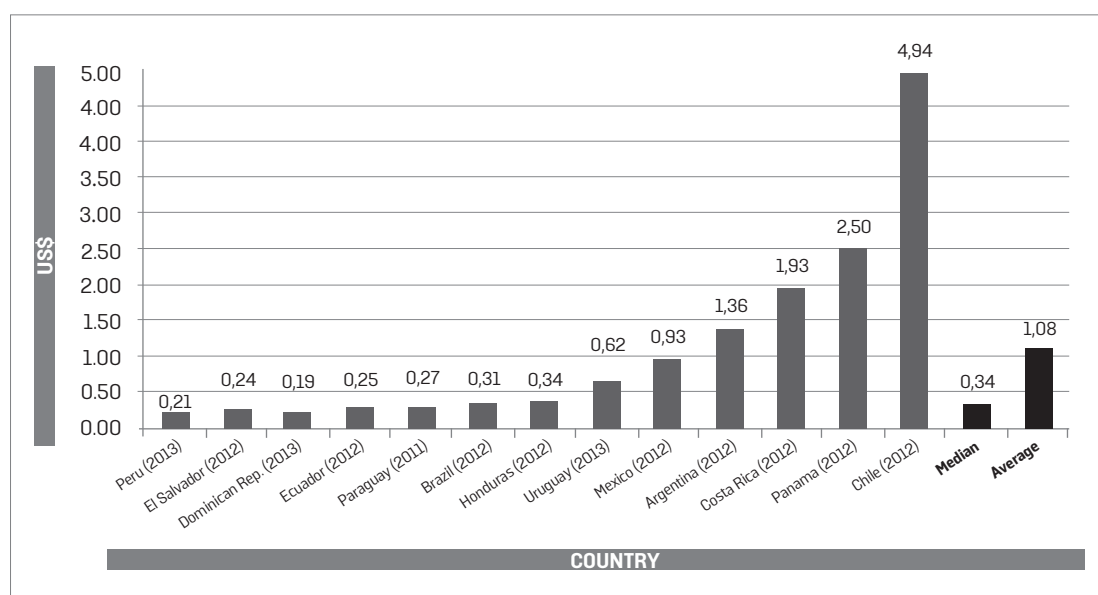
Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Table 7. Unit price for abacavir, by country

Country	Abacavir 300 mg unit price (US\$) (2012/13)
Peru (March 2013)	0.21
El Salvador (2012)	0.24
Dominican Rep. (January 2013)	0.19
Ecuador (2012)	0.25
Paraguay (November 2011)	0.27
Brazil (2012)	0.31
Honduras (2012)	0.34
Uruguay (January 2013)	0.62
Mexico (2012)	0.93
Argentina (2012)	1.36
Costa Rica (2012)	1.93
Panama (2012)	2.50
Chile (2012)	4.94
Median	0.34
Average	1.08

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013

Figure 7. Unit price for abacavir, by country, 2011-2013



Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

7) Atazanavir capsules (200 mg)

8) Raltegravir tablets (400 mg)

Table 8. Unit price for atazanavir

Country	Atazanavir 200 mg. Unit price (US\$) (2012)
Brazil	1.71
Argentina	4.14
Chile	6.51
Median	4.14
Average	4.12

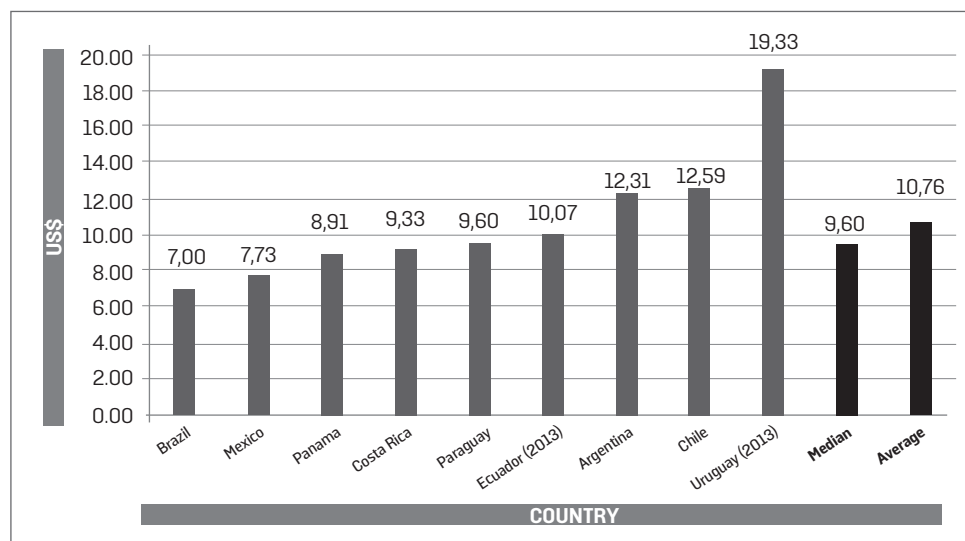
Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Table 9. Unit price for raltegravir (400 mg), by country, 2012

Country	Raltegravir 400 mg. Unit price (US\$) (2012)
Brazil	7.00
Mexico	7.73
Panama	8.91
Costa Rica	9.33
Paraguay	9.60
Ecuador (2013)	10.07
Argentina	12.31
Chile	12.59
Uruguay (2013)	19.33
Median	9.60
Average	10.76

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Figure 8. Unit price for raltegravir (400 mg), by country, 2012



Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

Potential analyses

Considering the information in the database of ARV drug purchases, another type of analysis is presented, by way of example, comparing the same regimen combination in one tablet with the combination in two tablets:

- Emtricitabine/tenofovir/efavirenz fixed-dose combination (each tablet contains 200 mg/300 mg/600 mg respectively) and
- Emtricitabine/tenofovir (each pill contains 200 mg/300 mg) plus efavirenz tablets (600 mg)

Prices are compared in countries having the single-tablet combination with the two-tablet combination in countries that purchase both, for the 2012-2013 period.²

In the five countries that purchase both combinations, in the period analyzed,

the purchase price of the fixed-dose combination is more affordable. However, prices vary greatly within each country. In two countries, Mexico and El Salvador, there is minimal variation (1% and 4%, respectively). Argentina and Panama present wider variation (20% and 24%, respectively) and finally, the greatest variation is seen in the case of Ecuador (the two-tablet combination regimen is 18 times more expensive than the fixed-dose combination).

Conclusion

We would like to point out that we believe that this study was able to generate real-time information on ARV prices and that this is the first step in a process that will improve gradually and will generate strategic information that can catalyze adequate evidence-based management. We also wish to point out the potential uses of the tool that was

developed:

- Improve public purchases by having up-to-date information on drug prices.
- Provide information on purchasing processes so that the factors that influence the final price can be identified.
- Promote information channels so that important strategic information about drug prices can be shared among members of the HTCG.
- Facilitate identification of focal points in each country that can clarify price information through contact data.
- Raise awareness among national focal points about the importance of sharing key information so that everyone can benefit from ARV drug negotiation and procurement.

² Note that for Ecuador and Argentina the price of the fixed-dose combination is for 2013, and all the two-tablet combination prices are for 2012.

Table 10. Unit price comparison between a single-tablet combination and a two-tablet combination

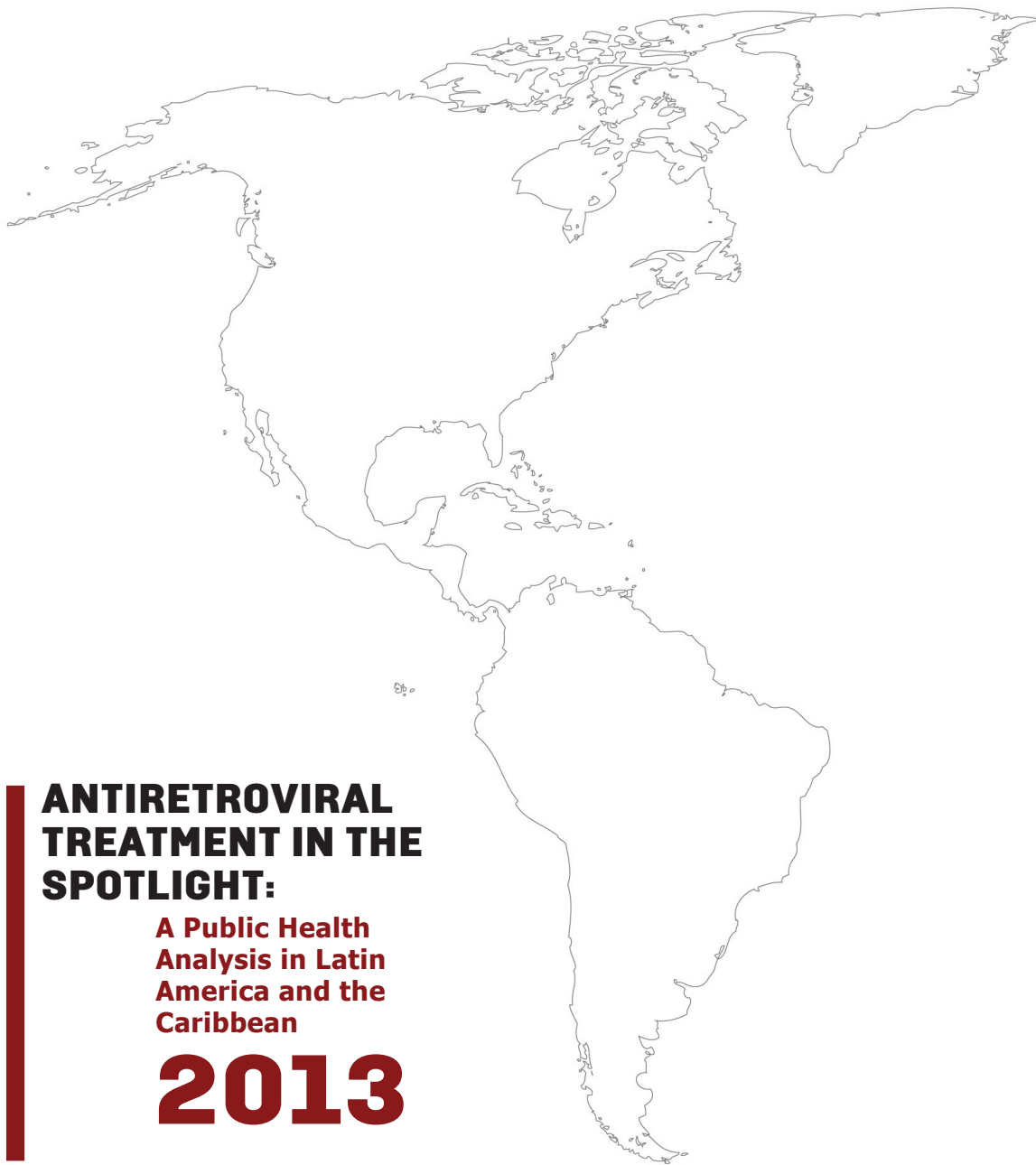
Country	Emtricitabine/TDF/EFV fixed-dose combination unit price (US\$)	Annual cost per patient (US\$) (2012/13) (a)	Unit price (US\$)		Annual cost of regimen per patient (US\$) (2012) (b)	Difference (b)-(a)	
			Emtricit./tenofovir	Efavirenz		US\$	%
Ecuador (2013)	0.44	158	7.5	0.3	2,874	2,716	1,723
El Salvador	0.46	166	0.34	0.14	173	7	4
Panama	1.74	625	1.3	0.32	774	149	24
Mexico	6.55	2,358	5.51	1.11	2,385	27	1
Argentina (2013)	7.34	2,643	8.12	0.71	3,178	535	20
Median		625	Median		2,385	1,760	281
Average		1,190	Average		1,877	687	58

Source: Horizontal Technical Cooperation Group (HTCG) with the technical assistance of the Department of AIDS and STI and the Department of Health Economics at the National Ministry of Health (Argentina). Analysis of antiretroviral drug prices in the area of the Horizontal Technical Cooperation Group in Latin America and the Caribbean. Argentina: HTCG, 2013.

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Belize	Dr. Marvin Manzanero		
Brazil	Dr. Fabio Mesquita Dr. Dirceu Bartolomeu Greco (cargo previo)	Ms. Cintia Freitas	Mr. Fábio O'Brien, General Coordinator of Management and Governance
Chile	Dr. Ana María San Martín	Mr. Edith Ortiz	Dr. Gloria Berrios Campbell
Costa Rica	Mr. Alejandra Acuña		Ms. Marjorie Arias Jiménez Mr. Alejandra Acuña
Ecuador	Dr. Rodrigo Tobar		Dr. Rodrigo Tobar
El Salvador	Dr. Ana Isabel Nieto	Dr. Humberto Andreu	Dr. Humberto Andreu
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Uruguay	Dr. Susana Cabrera		Ms. Lourdes Galván / Javier Díaz



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